REPORT

UPON THE

ROYAL DUBLIN SOCIETY,

THE MUSEUM OF IRISH INDUSTRY,

AND THE

SYSTEM OF SCIENTIFIC INSTRUCTION IN IRELAND.

OCTOBER, 1862.

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REPORT.

Royal Dublin Society.

The Royal Dublin Society had its origin in a private Association, formed in A.D. 1731, "for improving Husbandry, Manufactures, and other useful Arts and Sciences." The Association was incorporated in 1749, and by successive Acts of the Irish Parliament it was intrusted with the formation and management of Drawing Schools, a Botanic Garden, and a Museum of Natural History. In order to make the two last-named Establishments more useful for educational purposes, professorships were established in Botany, Chemistry, Mineralogy, and Natural Philosophy; and as books were required for the use of the Teachers and Students, a library was formed, which gradually acquired a more extended public character. Until 1836 the business of the Royal Dublin Society was transacted by the body at large; but in that year a Select Committee of the House of Commons reported upon the Institution, and, among other improvements recommended by them, an Executive Council was formed to conduct the affairs of the Society under the control of the body at large. In 1854 the Society was relieved from the superintendence of its educational staff, in order that the latter might be made available to the public for instruction by means of the illustrations of the two separate Museums of the Royal Dublin Society and of Irish Industry; but a right of admission was reserved in favour of the Members of the Royal Dublin Society to all lectures similar to those previously given, whether they took place in the Theatre of the Society or in that of the Museum of Irish Industry. In consideration of their advanced period of life, the existing Professors of Chemistry and Mineralogy were exempted from this arrangement, upon the understanding that successors would not be appointed to them; but on the decease of the Professor of Chemistry, permission was given for the appointment of a successor to him at the Royal Dublin Society, with especial reference to the application of Chemical Science to the improvement of Agriculture.

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After this brief sketch of the history of the Royal Dublin Society, we shall describe its present position more in detail under the following heads, adding such remarks upon each as appear to us to be called for :—

Constitution of the Society.
Finances of the Society.
Museum.
Library.
School of Art.
Botanical Garden.
Agricultural Department.

I.—*The Constitution of the Society.*

Members are freely elected without distinction of religion or class, subject to the payment of the following fees:—

	£	s.	d.
Annual Subscription (with £3 3s. Entrance Fee), .	2	2	0
Life Composition, ...	21	0	0

There are at present 844 Life and 334 Annual Members, making together 1,178. The work of the Society is chiefly done by eight Standing Committees, among whom the business is divided. The Council consists of the seven Vice-Presidents and two Honorary Secretaries, of nine Members elected by the Society (not being Members of any of the Standing Committees), and of two Members chosen by, and out of, each of the Standing Committees, being thirty-four Members of Council in all. Any order of the Council may be rescinded at a meeting of the Society, after notice has been given in a prescribed form.

This organization has been productive of some remarkable results. The Society is supported by a large constituency, residing in every part of Ireland and representing every Irish industry; all that takes place in connexion with the Society, therefore, speedily becomes an object of general interest, and secures an amount of co-operation which cannot be expected in the case of more isolated institutions. The Museums are chiefly composed of private donations, and the business of the Society is transacted in its Committees and Council and Monthly Meetings, with a zeal and activity, and regularity of attendance, which we believe to be very unusual.

One great defect of this constitution has, however, come fully to light. In the case of other large Societies with considerable sums of money to disburse, and numerous officers to control, full powers are vested in an Executive Council acting on behalf of the Society. The absence of any such provision in this instance has prevented the Council from acting with the decision and confidence which it would otherwise have done, and has led to insubordination on the part of some of its officers. It has also impaired the general usefulness of the Society in this respect. The Government cannot properly intrust the Society with the disbursement of public money, without being assured that every necessary condition will be carefully observed, and it is obvious that this assurance cannot exist while all the decisions of the Council are liable to be reversed by a popular vote.

The Council of the Royal Dublin Society recently appointed a Committee to review the official correspondence which had arisen out of this state of things; and a Report has been made, of which what follows is an extract :—

"Having thus gone into a short sketch of the origin and gradual growth of the Society, we have now to call the Council's attention to the important intimation that the Treasury are of opinion that, from certain facts which have come before them, the executive body of this Society (the Council) does not possess adequate control over the general management of the affairs of the Society, and in particular over its officers; and that, to insure full security for the proper appropriation of the Parliamentary Grant, the powers of the Council in these respects should be enlarged. On this point your Committee have to observe, that it is clearly essential to the well-being of the Society that the relations between the Government and the Society should be harmonious; and, looking to all the facts of the case, and the analogy between this Society and other large public bodies, your Committee are not prepared to dispute the ground taken up by the Treasury; and they would recommend that the Council take it into consideration to suggest to the Society such a modification of the Charter and By-laws as will delegate to the Council the general management of the Society, and give them exclusive control over its paid officers and servants, including the power of appointing and dismissing them, as well as that of regulating their duties. Such a change might render desirable some alteration, so as to cause the action of the Society at large, in relation to the Council, to be more immediate and direct, and render the Council to a still larger extent than at present the exponent of the opinion of the body at large.

"With this view the Committee would recommend the following modifications in the constitution of the Council and Committees. The Society to elect fourteen Members of Council (instead of nine, as at present), of whom five should retire each year, and be ineligible for re-election that year. That the number of standing Committees should be reduced from eight to seven, by amalgamating the Natural Philosophy and Chemistry Committees. That each Committee should elect a Chairman and Vice-Chairman; and that such Chairman, or in his absence the Vice-Chairman, should have a seat on Council, which would thus consist of fourteen Members elected directly by the Society; seven returned by the Committees; seven Vice-Presidents; and two Honorary Secretaries—in all thirty Members.

"The restriction which prevents the same persons being elected on the Council and Committees should be removed, so that the election for both might be held at the December meeting, and the new Council would come into office on the 1st of January. Many practical inconveniences, which are at present felt, would thus be removed, and the code of By-laws much simplified. And as the members of Council directly returned by the Society at large would outnumber those sent up by the Committees, in the proportionof two to one, the opinions of the Members generally could not fail to be fairly represented, and to carry their adequate weight in the Council."

The proposal of the Committee, therefore, is, that while the Council of the Royal Dublin Society for the time being should be vested with full authority to act on behalf of the Society, the influence of the Society at large upon the election of the Council should be made more direct and effectual, and that the Members should retain their privilege of free access to the Library, Museums, Lectures, Exhibitions, and ordinary and scientific meetings of the Society. In this we entirely concur, and we are of opinion that when the constitution of the Council has been improved in the manner proposed, the Royal Dublin Society may be intrusted with the disbursement of grants of Parliament, with as much confidence as the Trustees of the British Museum or the Trustees of the Board of Manufactures in Scotland After this change has been made, a seat on the Council of the Royal Dublin Society, which is even now held in much esteem, will become a greater social distinction, and increased care will be taken to select fit persons for it.

The only point on which we think that the recommendations of the Committee should be reconsidered is where they suggest that the Five Members of the Council who would retire each year should be ineligible for re-election in that year. The public interest would suffer if the Members at large were deprived of the opportunity of re-electing Members of Council who had ably and diligently discharged their duties; but every facility should exist for comparing the claims of the outgoing Members with those of new Candidates, and for making such selections as appear to be most for the public advantage.

The Report of the Sub-Committee of the Council which has been quoted by us, was signed by Sir Richard Griffith, Baronet, Mr. I. R. D'Olier, Mr. E. Senior, and Mr. F. J.

Sidney, LL.D. Of the gentlemen examined by us the evidence of Lord Talbot of Malahide, Mr. Sanders, and Mr. Senior, has the most direct bearing upon this part of the subject.

II.—*The Finances of the Society.*

The income of the Royal Dublin Society is derived, first, from the parliamentary grant, which has, since 1855, been £5,500 a-year; second, from the Members' admission fees and annual subscriptions, which have amounted, on the average of the last six years, to £1,300 a-year; and, thirdly, from various miscellaneous receipts, such as admission fees at cattle shows, &c., which are the proceeds of the application of the two preceding funds. The parliamentary grant is distributed, according to a fixed appropriation set forth in the annual estimate sanctioned by the Department of Science and Art, among the different objects operated upon by the Society; while the sums derived from the other two sources of income are used by the Society as a contingent fund to supplement the parliamentary grant, according to the various exigencies of the respective branches.* The whole of the Society's

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* The appropriation of the Government grant, and of the sum expended in aid of it from the miscellaneous income of the Society, are as follows:—

DISTRIBUTION of the PARLIAMENTARY GRANT of £5,500 to the several DEPARTMENTS of the ROYAL DUBLIN SOCIETY.

	£	s.	d.	£	s.	d.
Agricultural Exhibitions (two annually):—						
Superintendent's salary and part of porter's wages,	63	0	0			
In aid for prizes,	187	0	0			
				250	0	0
Agricultural Laboratory:—						
Professor of Agriculture, salary,	150	0	0			
Wages, laboratory and lecture room porter,	52	0	0			
Chemicals and apparatus,	28	0	0			
				230	0	0
Agricultural Museum:—						
Salary of Curator,	100	0	0			
Wages, museum porter (part wages),	13	0	0			
Specimens, preparations, contingencies,	62	0	0			
Temporary allowance for repair and completion of the museum,	120	0	0			
				295	0	0
Botanic Garden:—						
Salary of Curator,	175	0	0			
Wages of foremen and labourers,	500	0	0			
Rents and taxes,	163	0	0			
Fuel, garden tools, implements, manures, composts, plants, freights, and contingencies,	483	0	0			
Compassionate allowance to widow of late Curator,	25	0	0			
				1,346	0	0

income and expenditure, whether derived from the parliamentary grant or from other sources, is accounted for at the end of each month to the Commissioners of Audit,

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DISTRIBUTION of the PARLIAMENTARY GRANT of £5,500—*continued.*

	£	s.	d.	£	s.	d.
Museum of Natural History:—						
Salary of Director,	250	0	0			
„ of Professor of Mineralogy,	150	0	0			
Wages of porters,	54	12	0			
Specimens, preparations, freights, and contingencies,	195	8	0			
				650	0	0
Library:—						
Salary of Librarian,	200	0	0			
Clerk's salary,	90	0	0			
Two porters,	91	0	0			
Purchase of books, binding, and contingencies,	549	4	8			
				930	4	8
Manufactures, &c.:—						
Guarantee for occasional exhibitions,				150	0	0
Secretary's Department:—						
Salary of Assistant Secretary,	300	0	0			
Salary of Clerk to Assistant Secretary,	75	0	0			
				375	0	0
Registrar and Housekeeper's Department:—						
Salary of Registrar and Housekeeper,	200	0	0			
Salary of Clerk to Registrar,	40	0	0			
				240	0	0
Miscellaneous:—						
Compensation allowance to late masters (School of Art),	49	19	0			
General porters, messengers, attendants, &c.,	208	0	0			
Female servants,	72	16	0			
Rent and insurance,	300	0	0			
Fuel and light for general establishment, museums, library, reading-rooms, lecture theatre, laboratories, &c.,	102	17	0			
General printing, stationery, postage, advertising,	250	0	0			
Contingencies,	50	3	4			
				1,033	15	4
				£5,500	0	0

In addition to the foregoing a sum variable in amount is voted annually to the Board of Public Works, Ireland, for general repairs.

MODE IN WHICH THE FUND ARISING FROM ALL SOURCES OTHER THAN THE PARLIAMENTARY GRANT, was expended during the year ending March 31st, 1861.

	£	s.	d.
Agricultural shows,	1,574	0	0
Museum of Natural History,	302	17	5
Botanic Garden,	50	0	0
Library,	63	18	10
Salaries and wages,	48	19	7
Rents and insurances,	16	17	10
Fuel and light,	70	8	9
Printing,	116	12	10
Advertising, stationery, and sundries,	213	1	9
Glazed cases for physical apparatus,	150	0	0
Furniture,	114	2	0
Buildings and repairs,	678	17	5
	£3,409	16	5

through the Department of Science and Art. In addition to the annual grant of £5,500, which is administered by the Society, the ordinary repairs of the buildings, and any special grants which may be made for their improvement, are provided for in the estimate of the Board of Works, under the general rule which vests the charge of all public buildings in Ireland in that department.

The peculiar mode of arranging the appropriation of the parliamentary grant and the incidental receipts above described, is attended with this advantage, that it stimulates the voluntary action of the Members, whose power of promoting the objects of the Society is increased in proportion to the augmentation of its miscellaneous income; but it is open to this objection, that the Government, which provides the largest part of the joint fund, has no previous cognisance of the application of a portion of it, and might therefore indirectly contribute to objects not within the scope of the Parliamentary grant. The Government would, we think, obtain the power of influencing, to any necessary extent, the application of the aggregate fund, without impairing the motive of the Society to increase their incidental receipts, if the following arrangements were adopted—that the Society should enter upon no new branches of work without the consent of the Government, and that the annual estimate submitted to Parliament should show the whole of the expected income and expenditure of the Society during the ensuing year, whether derived from the Parliamentary grant or from other sources. Everything connected with the buildings in the occupation of the Society should continue to be under the charge of the Board of Works, but that Board should communicate with the Department of Science and Art previously to submitting this part of their annual estimate to the Treasury.

III.—*The Museum.*

The Natural History and Mineralogical* collections are of great value, and there are no other means in Ireland of obtaining the kind of instruction which such exhibitions afford. A new Museum has been erected at an expense of £12,000, half of which was granted by Parliament, and the other half was derived from the private subscriptions and miscellaneous income of the Royal Dublin Society;

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* One division of the Mineralogical collection has lately been arranged with great care by Professor Haughton, of Trinity College, which is one among many instances of gratuitous service rendered to the public by gentlemen of high attainments through the medium of this Society.

but the largest portion of the collection is still unavailable for exhibition to the public, for want of a heating apparatus, cases, and fitments. The estimated cost of these is about £4,500. It is desirable that they should be provided, in order that the large sum already expended may be turned to some useful account; and that the deterioration of the articles stowed away in packing cases, or standing exposed in unaired rooms, may be arrested.

IV.—*The Library.*

This Library is a very useful National Institution. No restriction is placed upon the use of the books by the public, beyond what is necessary for their preservation ; and there is a commodious Reading-room, which has lately been opened for three evenings in the week (besides the admissions during the day), and it would be opened every evening, except Sunday, if the sum available for the wages of attendants were sufficient. The rooms formerly occupied by the Museum in the main building have been appropriated to provide additional accommodation for the Library; but before they can be used for this purpose, they must be fitted with shelves, at an estimated cost of £1,000, the expenditure of which may be spread over two or three years. Meanwhile great numbers of books have accumulated in the garrets where they are nearly inaccessible.

V.—*The School of Art.*

The School of Art is managed under the general rules of the Department of Science and Art, the only difference being that, instead of being superintended by an ordinary Committee, the School is under the direction of the Council of the Royal Dublin Society, acting through one of the Standing Committees of that body, and that it has the use of commodious apartments, and of a fine collection of casts purchased out of former grants of Parliament to the Royal Dublin Society. The present state of the School does not give satisfaction, and various suggestions have been made for its improvement; but the application of proper remedies belongs so entirely to the ordinary administration of the Department of Science and Art that we have not thought it right to enter upon the subject. There were in 1861 396 Students in the Central School, besides 330 children in public schools, receiving instruction from the two masters of the School of Art, and it is to be regretted that so much desire and capacity for artistic excellence should not have more full scope given to it.

VI.—*Botanical Garden.*

The Botanical Garden was justly described by the Select Committee of 1836 as "one of the largest and most beautiful in Europe;" and its present economical and efficient management is very creditable to Mr. Moore and to the Superintending Committee of the Royal Dublin Society. The opening of the Garden on Sunday has been a great success. Thousands of persons of the middle and lower ranks are to be seen every fine Sunday afternoon enjoying the Garden and Conservatories, and the neatness of their dress is as remarkable as the correctness of their behaviour. Several arrangements are proposed for the improvement of this highly useful and interesting public establishment, the most important of which are the erection of a proper building for a Botanical Museum instead of the present very insufficient shed, and the addition to the Arboretum of six acres, which are at present held of the Society under a lease. In our opinion some further assistance might, with much public advantage, be given to the Garden; but all cannot be done at once, and it will be the duty of those who are immediately responsible to call attention to the improvements which they consider entitled to a preference. The cost of a building for the Botanical Museum is roughly estimated at £1,000. The educational influence of the Botanical Garden is much increased by the lectures of the Professor of Botany, which are often delivered at the garden itself.

VII.—*Agricultural Department.*

This Department consists of—

1st. An Agricultural Museum, in which the products and implements of Agriculture are classified and exhibited.

2nd. Courses of Public Lectures delivered by the Professor of Agriculture; practical evening demonstrations in Analytical Agricultural Chemistry to Working Students conducted by him in the Laboratory; and Chemical Analyses and Examinations of Manures, Soils, and Agricultural Produce performed by him; and

3rd. Two Annual Agricultural Shows, one in the Spring and the other at Christmas.

This branch of the Society's operations is conducted with much spirit and success. The special object of the Agricultural Shows is to establish a point of union with the Agriculturists and Machine Makers of England and

Scotland, and it is generally admitted that the facilities thus afforded for making known in Ireland every improvement in stock and agricultural implements in the other portions of the United Kingdom is productive of much public advantage. The object could not be fully attained by the Exhibitions of the Royal Agricultural Society of Ireland, which are held alternately in different provincial towns. In order to provide accommodation for the periodical Shows in Dublin, permanent arrangements involving considerable expense must be made at that place. For this purpose the Royal Dublin Society has erected a large building, called the Agricultural Hall, at a cost of about £5,000, which has been entirely defrayed from private subscriptions and miscellaneous receipts; but, in order to complete the accommodation, an adjoining piece of ground must be purchased at a further expense of £3,000. The Agricultural Shows used to be held on the lawn in front of the Society's principal building, but this has now been appropriated to the handsome new wings forming the Museum and the National Gallery and to the ornamental garden connecting them. Believing this to be a well-directed effort for the improvement of Irish Agriculture, and considering the extent to which it has been already carried without expense to the public, we are of opinion that some Parliamentary aid may properly be granted. When the improvements have been completed, the payments for admission to the periodical Shows will be sufficient to defray all the incidental expenses. The contents of the Agricultural Museum are entirely the result of private donations.

Museum of Irish Industry.

It was decided in 1845 to found in Dublin an institution similar to the Museum of Practical Geology, then recently established in London. Sir Robert Kane was appointed Director, and a house was soon after purchased in Stephen's-green by the Woods and Forests, under which department the institution was first placed. The necessary alterations to the house, in the form of galleries, &c., commenced in 1847, were only completed in 1852, when the arrangement and classification of the collections on the present plan was begun. Unlike the institution in Jermyn-street, London, which from the first has been directed solely to one clearly defined object—the mining industry of the country—the Museum of Economic Geology was soon extended to embrace the whole range of the industrial arts. In 1853 the name was changed to the Museum of Irish Industry, and the Institution was transferred to the Department of Science and Art, then under the Board of Trade, and now under the Committee of Council on Education.

The Institution may best be described under two heads, which form distinct branches, the one the purely Exhibitional, the other the Educational division.

Exhibitional Division.

The Exhibitional division consists of three distinct collections. (1.) The Geological Collections. (2.) The Industrial Collections. (3.) General Portlock's Zoological and Botanical Collections.

The Geological Collections comprise the Palæontological Collections formed by the Geological Survey of Ireland, a set of duplicates from the English collections in Jermyn-street, the Fossils collected by General Portlock, under the Ordnance Survey, and a collection of Rocks made by the Geological Survey in the South, and by General Portlock in the North of Ireland, together with a series of European Rocks purchased for the Museum from M. Krantz, of Bonn The Museum was first established with a view especially of receiving these collections, which were in course of formation by the Geological Survey of Ireland, then recommencing as part of the Geological Survey of the British Islands, under Sir Henry Delabeche. Though placed in the Museum of Irish Industry, they are, at all events while the Survey is in progress, in charge solely of the officers of the Geological Survey. A portion only has yet been arranged for exhibition. There is also a small supplementary general Geological collection, purchased by the Museum for the use of the Lecturer on Geology.

The Industrial Collections embrace a very wide field, and are not confined to Irish industry. In some branches they are very complete, while in others the series of illustrations is still very imperfect. They comprise raw materials and manufactured products, in two divisions.

1. An Inorganic Division, consisting of marbles for decorative purposes, building materials, stones, flags, cements, &c.; Geological Collections, to show the lithological character and history of non-fossiliferous rocks; Metallurgical Collections, showing the geological position and character of the ores; the treatment, the uses, and the compounds of the most important metals, such as iron, copper, tin, &c., with illustrations of their manufactures; Mineralogical Collections, showing the practical

uses of minerals, as the sources and properties of alumina; illustrations of the chemico-mineral manufactures, such as sulphur and sulphuric acid, soda, magnesia, &c.; Collections illustrating historically, chemically, and mechanically, the manufacture of pottery, porcelain, and glass; and lastly, a Collection of fuels, principally Irish.

2. An Organic Division, illustrating the applications of vegetable and animal substances, such as woods, flax, fibre, cotton, silk, &c.; tracing them through their various stages, as flax in the growing plant, as prepared for spinning, as yarn, as linen of various qualities, as rags, paper, and papier-maché.

These two divisions or series may be considered as, to a certain extent, distinct; the one as forming a supplement to the Geological Survey Collections; the other as being wholly unconnected with them.

In connexion with these collections there is a series of models for the explanation of the different processes, such as models of mining machinery; of the furnaces employed in iron smelting, &c., for cast and bar steel, and for the pottery manufacture; and of the machinery used in the silk and worsted manufacture, such as velvet, poplin, carriage lace, &c. Lastly, a collection of models of boats, nets, and other equipments employed in the fisheries on the coast of Ireland, to which it is intended to add illustrations of the Irish fish, and baits used for their capture. These collections were made partly by gift, but principally by purchase.

The Museum contains, besides the Geological Collections, and the Industrial Collections already described, a collection of birds, fishes, and shells, forming part of the collection made by General Portlock, with a view to illustrate every branch of the Natural History of Ireland, during the progress of the Geological Survey of that country, when carried on as part of the Ordnance Survey. The remainder of this collection, that is, the Geological portion, has been absorbed into the general collection; but the Zoological and Botanical portions still remain separate.

The Museum has a small library of scientific works of reference for the Officers and Professors, to which Students attending the classes are admitted; and in the Museum, are deposited the Ordnance Survey Maps of Ireland, a series of Coloured Maps showing the Official Valuation of Land, and Agronomical Maps showing the nature and distribution of Agricultural soils in some parts of the country, for which materials were collected by Sir R. Kane for investigation.

The staff of the Museum Proper, consists of a Director, a Curator, and a Clerk and Accountant.

Educational Division.

The educational division was placed on its present footing in 1854, when the Royal Dublin Society was relieved of the superintendence of its educational staff, to avoid subsidizing a double set of Teachers.

The educational staff consists of Professors of Physics, Chemistry, Botany, Zoology, and Geology, and an Analytical Chemist and his Assistant. They are called Professors of the Science and Art Department, as pertaining equally to the Royal Dublin Society and the Museum of Irish Industry, the courses of lectures being given partly in the Theatre of one Institution, and partly in that of the other, and illustrated from the collections contained in both Museums. The superintendence and arrangement of these lectures is confided to a distinct body, the Committee of Lectures, whose constitution and functions will be described more fully hereafter. The aim of the lectures at the Royal Dublin Society is to give popular elementary instruction in Science; that of the lectures in the Museum of Irish Industry, to give more advanced and technical instruction. With this view the Professors formerly delivered a short course of twelve lectures, termed Popular, at the Royal Dublin Society, and a distinct long course at the Museum of Irish Industry, termed Systematic. To relieve the Lecturers from the inevitable and useless repetition of the early part of the course, the Popular course of twelve lectures is now made to form the introductory part of the Systematic course. There are two courses of lectures, a day course at 4 p.m., and an evening course at 8 p.m. The first part (twelve lectures) of each day course is delivered in the Theatre of the Royal Dublin Society, while the remainder of the course is given in the Museum of Irish Industry. The evening courses are delivered wholly in one Theatre or the other, as the arrangements for the day courses render most convenient. According to the old system, the Popular day course in the Royal Dublin Society was free, while for the Systematic course in the Museum of Irish Industry, a small fee—*3s. 6d.* or *2s.* according to the course—was charged for registration. The Systematic course was followed by examination, the free course was not. These courses having been amalgamated, the first twelve lectures which take the place of the free lectures are free to the public, for the remainder a fee is charged. In the same way the first twelve evening lectures, representing the old Popular lectures in the Museum of Irish Industry, are free, while for the last eight a fee of 6*d*. is charged. Those students who wish to go in for examination and compete for certificates and prizes, and who may be termed the regular students of the Museum of Irish Industry, must register themselves. The following table for the Session 1862–1863, will more fully explain this somewhat complex lecture system :—

	Day Lectures		Evening Lectures.	
	R.D.S.	M.I.I.	R.D.S.	M.I.I.
Botany, . . .	24	—	—	6
Physics, . . .	12	20	20	—
Chemistry, . . .	12	30	—	12
Geology, . . .	12	30	—	12
Zoology, . . .	12	—	—	20

Besides these courses of lectures there are day and evening courses of practical instruction in Chemistry and a course of practical Zoology. For the Laboratory course of qualitative and quantitative analysis a fee varying from £8 for nine months to £2 for one month is charged. This includes apparatus and reagents. For the practical Zoological instruction a fee of £1 is charged.

At the conclusion of each systematic course examinations are held in which certificates of two kinds—"pass" and "general"—are given, and prizes of books or money—£5, £2, and £1—to the three highest who pass in any subject.

Having now described the machinery of instruction, it remains to define its nature and bearings. This it is difficult to do without entering too much into detail. A careful examination, however, of the very full Syllabus of the course of instruction makes it evident that it cannot be strictly considered applied or industrial in the technical sense. It is a sound scientific education, with a somewhat more than ordinary technical bias—more than ordinary, that is, in comparison with the course followed in any lectures which do not profess to be industrial. But as thirty-two lectures is the extent of the longest course, and as, from the absence of all previous preparation, these commence from the rudiments of the science, and aim at giving a sound knowledge of that science, as well as its industrial application—not to one in particular, but to almost every industry—it is evident that no one special application can be fully elucidated. In fact the instruction must be looked upon as not so much technical as general.

The class of persons who attend these lectures, as will be seen on reference to Sir R. Kane's evidence, are different at the day and at the evening courses. The attendance at the day courses consists, as might be expected, entirely of the upper and middle classes—members of the Royal Dublin Society, young ladies qualifying themselves to be governesses, school-boys, &c. That at the evening courses consists of the middle classes—clerks, &c., who are occupied with their own business during the day—with a proportion of the artizan class.

The attendance will be seen from the following return :—

RETURN of the NUMBER of FREE and SYSTEMATIC LECTURES delivered at the MUSEUM OF IRISH INDUSTRY, together with the NUMBER of STUDENTS who registered, and the amount of FEES received during the Session 1861–62.

SYSTEMATIC LECTURES.

	No. of Lectures delivered.	No. of Students registered.	No. competed at Examinations.	Fees received. £	s.	d.
Physics,* .	18	28	11	4	18	0
Chemistry, .	30	37	10	6	9	6
Geology, . .	30	35	10	6	2	6
Botany,† . .	—	7	7	0	14	0
Zoology, . .	15	16	10	1	12	0

FREE LECTURES.

		Average Attendance.
Geology, . .	(12)	121·5
Chemistry, . .	(11)	213·8
Zoology, , .	(12)	54
Botany, . .	(6)	81·7

PRACTICAL CHEMICAL CLASSES.

The General Session is divided into two Laboratory Sessions.

	1st Part. No. of Students registered.	2nd Part. No. of Students registered.	Competed at Examinations.	Fees received. £	s.	d.
Day Class, .	6	8	–	46	10	0
Evening Classes,	19	17	8	36	9	0

188 Day Lessons and 113 Evening Lessons in Practical Chemistry were given during the Session 1861–62.

October 9, 1862. Signed, ROBERT KANE, *Director*.

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[*] The first part of the Systematic Course on Physics was delivered in the Theatre of the Royal Dublin Society, with an average attendance of 161¼ persons. A Public Course of twelve lectures was also given by the Professor of Physics in the same place, and was attended on an average by 179⅓ persons.

[†] The Systematic Lectures on Botany were delivered in the Theatre of the Royal Dublin Society; but the Students were registered and the examination held at the Museum of Irish Industry.

There is one other function of the Museum of Irish Industry to be mentioned before quitting this portion of the subject. Besides the analyses required for the Museum, others are performed, free of charge, in the Laboratory for the Government, or for other bodies who obtain the sanction of the Irish Government. Thus various waters were analysed for the Corporation of Dublin; and various descriptions of food, as milk, &c., were analysed for the Poor Law Board.

Parliamentary Grant for the Museum of Irish Industry.

The vote for the Museum of Irish Industry for 1862–3, including the Provincial Lectures, was as follows:

	£	s.	d.
I. The Establishment:			
1 Director,	400	0	0
3 Lecturers at £200, 2 at £100,	800	0	0
1 Chemist,	200	0	0
1 Curator,	200	0	0
1 Clerk,	160	0	0
1 Head Porter,	65	0	0
6 Attendants and Messengers, £52,	312	0	0
2 House Servants,	60	0	0
Extra Attendants,	50	0	0
	2,247	0	0
II. For Provincial Lecturers,	500	0	0
III. For Purchase of Specimens for Museum and Books for Library,	400	0	0
IV. For Outfit and Illustration for Lectures,	300	0	0
V. For Prizes,	50	0	0
VI. For Rent, Rates, and Taxes,	253	6	0
VII. For Repairs, Furniture, Fittings, &c.,	550	0	0
VIII. For Laboratories,	100	0	0
IX. For Fuel and Light, Soap, Cleaning, &c.,	250	0	0
X. For Uniforms for Attendants,	62	10	0
XI. For Advertisements and Printing,	100	0	0
XII. For Travelling Expenses,	50	0	0
XIII. For Incidents,	200	0	0
Total Museum of Irish Industry and Provincial Lecturers,	5,062	16	0

The Committee of Lectures.

The Committee of Lectures was constituted, in 1854, as a common authority to adjust the courses of lectures between two co-ordinate bodies, the Royal Dublin Society and the Museum of Irish Industry. The Committee consists of eight Members; four elected by the Royal Dublin Society, and four nominated by the Science and Art Department. To them was, at the same time, intrusted the management of the grant of £500 per annum for provincial lectures, which had been for many years administered by the Royal Dublin Society. This grant was, in 1856, increased by £200, and in 1857 by another £200 per annum, for the purpose of enlarging its operations, and testing its action by examinations in which prizes and medals were conferred after each course of lectures; and also for the purpose of providing for the remuneration of the Secretary, and for his travelling expenses in superintending the examinations. The provincial lecture system is managed in this way. Any town in Ireland wishing to have a course of lectures during the Summer months, applies to the Committee of Lectures, who, if there are more towns than can be supplied out of the grant, as is generally the case, make a selection. Each of the selected towns deposits £10, which goes towards the lecture fund. The town has to supply a suitable room, with lighting, &c.; but fees are allowed to be charged towards defraying these expenses. The following is an example of the scale generally adopted.

	s.	d.
Reserved Seats for the Course of Nine Lectures,	3	6
Family Tickets for Four,	10	0
Unreserved Seats for the Course,	2	0
Family Tickets for four,	6	0
Single Lecture, to any part,	0	6
Schools for the Course for each Pupil,	1	6

A number of Free Tickets for National Schools are placed at the disposal of the Teachers.

The Lecturer receives £50 from the Committee of Lectures for a course of nine lectures, in addition to which they stipulate that he shall give four or five evenings to class instruction during the course, to prepare the pupils for examination. The examination is held about six weeks after, and prizes and medals are conferred on all who attain a certain standard. The Science and Art Department having instituted a general system of science instruction and examination, the examination being open to all, however taught, it has been determined to discontinue the grant of £400, from which the expense of the separate examinations held in connexion with the provincial lectures was defrayed.

The attendance for 1861 on these lectures was as follows:—

TABLE.

Date of Lectures	Places.	Subjects.	Lecturers.	Average Attendance.	Date of Examination.	Number of Candidates at Examination.	Prizes awarded.	
							1st Class.	2nd Class.
April,	Belfast,	Geology,	Prof. Jukes,	379	16,17 May,	52	6	11
June,	Cork,	Electricity and Magnetism,	Prof. England,	99	17 July,	18	7	2
June,	Larne,	Geology,	Prof. Thomson,	277	5 August,	11	2	3
June & July,	Co. Antrim, Ballymena, Belfast, Dunmurry, Templepatrick,	Agricultural Chemistry,	Prof. Hodges,	102	15 August,	25	7	13
July,	Carlingford,	Hydrostatics and Pneumatics,	Prof. Barker,	112	30 August,	13	3	1
July,	Tullamore,	Electricity and Magnetism,	Dr. Lover,	95	13 Sept.,	16	4	4
Sept.,	Bandon,	Geology,	Prof. King,	58	16 Oct.,	9	2	4
October, Nov. & Dec.	Drogheda,	Astronomy,	Dr. Shaw,	131	30 Dec.,	4	2	–
			General Average,	157	Total,	148	33	38
					Average,	18½		

The class of persons who attend are the gentry and middle classes of the neighbourhood, National School teachers and pupils, and a proportion of the working classes.

GENERAL SCIENCE SYSTEM OF THE SCIENCE AND ART DEPARTMENT.

It is necessary now to describe briefly the General Science System of the Science and Art Department, to the application of which to Ireland our attention has been directed. It consists of a system of payments to the teacher on the results of his instruction of the industrial classes, and of such others as may be considered too poor to provide such instruction for themselves.

The aid of the Science and Art Department towards science instruction is given in three forms:—

1. Payments on results to certificated teachers.
2. Examinations, with prizes and medals, open to *all* candidates who present themselves.
3. Aid in the purchase of apparatus, &c., to the extent of 50 per cent. on the cost of it.

A certificate as teacher is obtained either by passing an examination, open to all, held annually in London in November, to and from which the travelling expenses of successful candidates are paid; or by the applicant showing, by his having taken a degree, published works, or made original researches in science, that he is qualified.

The examinations of classes, on which payments are made to the teacher, are held in all places where a Committee of five or more well-known and responsible persons is formed to conduct them. The Papers are prepared by the Professional Examiners of the Science and Art Department, and are sent to these Local Committees, who superintend their working, according to fixed rules. The examination in each subject is held simultaneously in the evening, all over the kingdom. The Committees then return the worked papers to the Science and Art Department, where they are examined, and the results classified under the five following heads :—Pass, Honourable Mention, Third Class, Second Class, and First Class Queen's Prizes. The prizes consist of books, and are given to all who attain the requisite standard. The only restriction is as to medals. There are six given in each group*—one gold, two silver, and three bronze, competitively throughout the kingdom. A middle-class student, if above seventeen years of age, cannot carry off one of these from the students of the industrial classes, but receives an honorary certificate instead.

For every student of the industrial classes who has received forty lessons from him, the teacher receives £1, £2, £3, £4, or £5, according as the student has passed, been honourably mentioned or received a Third, Second, or First Class Queen's Prize. The Local Committees examine and certify to these claims. The industrial classes are broadly defined as artisans and operatives in the receipt of weekly wages, or their children. In sending in the teacher's claim, however, the Committee are permitted to recommend that he shall receive payment on other pupils, who, though receiving wages at longer intervals than a week, they consider may fairly claim the same advantages. There is this limit fixed as to those on whose account the Committee may claim the extension, that they, or if they are not earning their own livelihood, their fathers, are not assessed to the Income Tax.

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* A group consists of two or three nearly allied subjects, as Inorganic and Organic Chemistry.

The system thus provides for the instruction of the industrial classes, but while it ensures the expenditure of the Government Grant on their account alone, it does not restrict the benefits of the instruction to them; on the contrary, by opening the prizes to all classes, it promotes its extension among the middle and upper classes, who by joining the schools and paying higher fees may remunerate the teacher, and gradually place the system on a self-supporting basis. It prescribes no special form of instruction; but allows each place to adopt that which suits it best; and it is, of course, free from all sectarian restriction. It enlists, as far as possible, local action in its administration, and as its aid is open to all, without limitation, it creates no vested rights, and is free from all objection on the score of injustice as a Government monopoly.

This system has been eminently successful in England and Scotland, for, having been only commenced at the latter end of 1859, when there were but four or five Science Schools under the Department, there were last January (see Ninth Report of the Science and Art Department), 72 schools or classes, with 3,147 pupils.

Application of this System to Ireland.

During the year 1860, the Committee of Lectures, with the concurrence of the Science and Art Department, turned their attention towards assisting, by means of their grant, the introduction of this system into Ireland, using their grant, as any ordinary committee of a school might employ their private subscriptions, to provide apparatus, &c., and supplement the payments earned by the Teacher from the Science and Art Department.

A pupil from the Museum of Irish Industry, Mr. John Dowling, went to London, and obtained a Science certificate. Classes were commenced, by the exertions of the Secretary of the Committee of Lectures, at Limerick, Clonmel, and Cork, the arrangement being for the Teacher to remain three months at each place. The Limerick class was small, owing to the time of year, but the Clonmel Class was specially examined in the Autumn of 1860—the General May Examination was not then established—and out of 39 candidates, 35 passed, 20 of them taking Queen's prizes; 7 first class, 7 second class, and 6 third class.

The Chemistry Class, under Mr. Dowling, at the Royal Cork Institution, was examined at the General May Examination of 1861, and the following extract from the report of the Committee of Lectures for that year will show with what results :—

> "The total number of students on the roll was 203, with an average attendance of 110 each lesson during a course of 50 lessons. A special class in Organic Chemistry was also formed of 22 of the more promising pupils, to whom 41 additional lessons were given. A glance at the table given below will show that this large class of 203 students was chiefly composed of shop-assistants, artizans, and mechanics, many of them of a very humble grade." 58 students were examined in Inorganic Chemistry, and 42 passed; 16 in Organic Chemistry, and 12 passed.
>
> "With reference to the passed students, the general character of their answering appears to have been excellent; they having taken 4 out of the 6 National Medals (including both the silver medals), and 19 prizes, of which 8 were first-class. This is the more remarkable as there appears to have been considerable competition, 22 teachers in the large towns in England and Scotland having brought up classes to the examination in chemistry; the Cork class, nevertheless (the only one in Ireland), carried off two-thirds of the medals, and more than half of the entire number of first-class prizes awarded."

The following is the analysis of the occupation of the 203 students on the roll :—

Shop Assistants & Apprentices,	49	Carpenters, .	. 5	Mason, .	. 1
		Engraver, .	. 1	Slaters, .	. 2
Clerks, .	. 40	Watchmaker,	. 1	Labourers, .	. 3
Teachers, .	. 5	Druggists, .	. 3	Weigher, .	. 1
Drapers, .	. 3	Chandlers, .	. 2	Steward, .	. 1
Bookseller, .	. 1	Miller, . .	. 1	Servants, .	. 2
Printers, .	. 4	Farmers, .	. 2	Females, .	. 5
Machinists, .	. 9	Vintners, .	. 2	Students, young lads, and others whose occupation is not given,	34
Engine Driver,	. 1	Huckster, .	. 1		
Stoker, .	. 1	Bakers, .	. 6		
Millwright, .	. 1	Tailor, . .	. 1		
Gasfitter, .	. 1	Shoemakers, .	. 3		
Brassworkers,	. 2	Corkcutter, .	. 1		
Smiths, .	. 2	Car-owners, .	. 3	Total,	. 203
Tinmen, .	. 2	Stucco Worker,	. 1		

The Committee of Lectures having engaged the services of another teacher, classes were taught at the following places for the May, 1862, examination, viz.—Cork, Clonmel, Bandon, Lisburn, Carrickfergus, and Belfast, by the two certificated teachers, both of them being also subsidized by the Committee of Lectures. The following table shows with what remarkable results :—

TABLE.

Place.	Subject of Instruction.	No. under Instruction.	No. Examined.	No. who Passed.	No. of Queen's Prizes obtained. 3rd Class.	2nd Class	1st Class.	National Medals obtained.	Total No. of Pupils under Instruction
CORK,	Chemistry, Inorganic,	30	17	17	1	5	8	1 Gold. 1 Bronze.	38
	Chemistry, Organic,	30	13	11	1	3	5		
	Animal Physiology,	–	6	5	4	–	1	1 Silver.	
	Zoology,	–	5	3	1	–	–		
	Vegetable Physiology,	16	12	12	1	2	1	1 Gold.	
	Systematic Botany,	16	12	12	2	1	–		
CLONMEL,	Chemistry, Inorganic,	23	17	15	2	–	2	1 Silver.	23
	Chemistry, Organic,	6	4	4	–	1	1		
	Vegetable Physiology,	5	4	4	–	–	–		
	Systematic Botany,	5	4	4	1	–	–		
LISBURN,	Geology,	32	7	7	1	3	3	1 Silver.	32
	Mineralogy,	32	6	5	–	3	–		
	Zoology,	32	6	6	1	1	–		
BANDON,	Chemistry, Inorganic,	49	16	10	1	3	5	1 Silver.	49
	Chemistry, Organic,	16	8	7	–	2	3		
	Geology,	6	6	6	1	4	–		
	Mineralogy,	6	6	5	–	4	1		
CARRICKFERGUS,	Geology,	76	10	10	1	2	1		113
	Mineralogy,	76	5	3	2	1	–		
	Zoology,	25	7	7	2	1	–		
BELFAST (Museum),	Chemistry, Inorganic,	10	4	4	1	–	2		90
	Geology,	90	37	37	12	7	7	1 Gold. 1 Silver. 3 Bronze.	
	Mineralogy,	90	29	23	4	6	6		
	Vegetable Physiology,	16	withdrawn.						
	Systematic Botany,	16							

The next table shows the results of a science class in Belfast, which is purely under the Science and Art Department system—that is, the teacher, Mr. Eardley, who is also a teacher in the National School, receives no aid from the Committee of Lectures.

Place.	Subject of Instruction.	No. under Instruction.	No. Examined.	No. who Passed.	No. of Queen's Prizes obtained. 3rd Class.	2nd Class.	1st Class.	National Medals obtained.	Total No. of Pupils under Instruction.
BELFAST (Model School).	Acoustics, Light, and Heat,	29	12	12	5	4	–	2 Bronze.	29
	Magnetism and Electricity,	29	12	12	1	5	3		

It appears that in Geology and Mineralogy, of the eight names in the medal list, six are those of Irish students. Two of these, however, of whom one was the first on the list, and would have been gold medallist, were precluded from taking medals as being middle-class students, so that the gold, and one bronze medal fell to English students; while in Chemistry only two bronze medals were left to England and Scotland. They also obtained a silver medal in Animal Physiology and Zoology, the gold medal in Vegetable Physiology and Systematic Botany, and two bronze medals in Physics.

When, with these remarkable results of the success of the science instruction, it appears (see Dr. Sidney's evidence) that the classes taught by the subsidized teachers of the Committee of Lectures, Messrs. Dowling and Tate, are not likely to continue, the cause of their collapse cannot be traced to any thing exceptional in the social condition of Ireland. It is evident that there are large numbers of people ready and anxious to avail themselves of the instruction, including a sufficient proportion of those classes for whose instruction the Government Grants are made to give the teacher large payments; and that, instead of their intelligence and elementary education being so deficient as to render a system inapplicable to Ireland which is found successful elsewhere, they have carried off almost everything they could in competition with their English and Scotch rivals.

It had, however, been found, after long experience in the Science and Art Department under the old system of subsidized aid to science instruction, that when a teacher trained by the Department and receiving a fixed certificate allowance was sent to conduct a science school with a guarantee from the Department for a few years, for the first year or two, the classes were very flourishing, but when the novelty wore off the classes began to diminish; the teacher came on the guarantee; the conditions entailed by a fixed allowance—moderate though they were—were not fulfilled; and, eventually, the school was closed. It was found, in fact, that even large towns, such as Stoke-upon-Trent, Hanley, and Burslem, could not unitedly find sufficient occupation for a teacher to earn his livelihood by science-teaching alone. The new system meets this difficulty by giving local teachers, who have other day occupations, sufficient inducement to turn their attention to science-teaching in the evening by making payments on results, however small. These teachers, commencing on a steady foundation of small, though efficient results, the co-operation of the locality is enlisted, and a permanent school established.

This will explain the falling away of the flourishing classes formed under similar circumstances at Cork, Bandon, &c. It appears that Mr. Eardley may be removed from Belfast, else there is no reason to suppose that his class will be discontinued.

General Conclusions.

I.—*Museums.*

It will be seen from this description of the actually existing arrangements, that two institutions, and two systems of instruction, having the same general objects in view, are in concurrent operation.

The geological and mineralogical portions of the two Museums are illustrations of the same science. The industrial portion of the Museum of Irish Industry is a practical application of the natural history collections exhibited by the Royal Dublin Society.

It is, for several reasons, better that there should be one Museum than two.

Many persons visit one Museum, few take the trouble to visit two. By collecting all our objects, therefore, in one Museum, they will be seen by more people than if they were divided between two.

By concentrating our means and efforts on one Museum, it may be rendered more complete and attractive than if two Museums had to be maintained. More people are therefore likely to come to one Museum than to two, and they are likely to get more instruction from it.

It is more economical to have one Museum than two. It is possible to have one good Museum, but it would be difficult to have two good ones. Although upwards of £12,000 a year is voted by Parliament for the Royal Dublin Society and the Museum of Irish Industry, the Museum of the former Institution is in a very unfurnished state; but if there were only one Institution there would be ample means for making it what it ought to be.

The interest and instructional power of a Museum are increased by presenting the same objects under different arrangements, and from different points of view. A scientific metallurgical series in one part of a Museum would be illustrated by practical applications of the metals in another part; and a collection of Irish fossils would be seen to advantage in connexion with a more extended series explanatory of the general formation of the crust of the earth. The facilities for study are decidedly diminished rather than increased by dividing such varied arrangements of similar objects between different Museums.

We have already directed attention to the influence which the peculiar constitution of the Royal Dublin Society exercises in widely diffusing an interest in the objects connected with the Society. By the union of the two Museums, this advantage would be extended to the collections now deposited in the Museum of Irish Industry. Indeed, more than that would be done, for the existing constituency of the Royal Dublin Society would probably be augmented by the addition of many new Members when it became known that it was intended to make the Society the basis af a well-supported National Irish Museum.

After all, the united Museum would not be a very large one. Unlike the British Museum, it would be confined to natural objects. There would be no Department of Antiquities or the Fine Arts, which are provided for in Ireland by separate arrangements. It would be merely, as already observed, a more comprehensive collection of the existing objects. It would, in some cases, embrace their practical application, as well as their scientific arrangement, and the Geology of Ireland would form a separate subdivision.

II.—*Scientific Instruction.*

We have described, in general terms, the system of scientific instruction which is now administered for every part of the United Kingdom by the Department of Science and Art of the Committee of the Privy Council on Education. That system has these great merits:—

It lays a solid foundation for a general system of scientific instruction, by first providing a supply of local Teachers.

It stimulates those Teachers to constant exertion by paying them according to the results actually exhibited in the examination of their Pupils.

Instead of creating a monopoly, it tends to the general diffusion of instruction. The existence of any number of authorized Teachers, would not prevent similar encouragement being given to any number of others who complied with the prescribed conditions. It is an elastic, general system, which is adapted to small places as well as to great, for few neighbourhoods are so small or poor, that a Teacher who qualified himself could not hope to obtain the authorized payments on a few Pupils.

While it confines pecuniary aid to the industrial classes, it encourages persons of every class to the study of science by providing them with means of instruction and holding out to them honorary rewards.

It lays a foundation for a purely voluntary system by leaving all except the industrial class to pay for their own instruction.

It is a very economical system, because no expense is incurred in training Teachers, and no payments are made by anticipation on the presumption that proper instruction will be given, but only after it has been proved by examination that proper instruction has been given, and then only in proportion to the instruction so given—and, being economical, the system can be freely applied to meet all the demands upon it.

The system of scientific instruction supported by the Government in Ireland has also great merits. It has been zealously and ably carried into effect by many learned Professors. Besides the amount of positive information given, it has raised the reputation of scientific pursuits and diffused a taste for them, and it has thrown much light upon the means by which Ireland has been recovered from her former depressed condition. But it was not to be expected that the last improvements introduced by the Committee of the Privy Council should be found in the existing system.

It has no direct tendency to produce a supply of local Teachers. The Teachers are paid by salary without any immediate reference to the results of their teaching. Teachers paid in this manner have an advantage in competing with those who have no fixed stipend. At the same time, the instructional force provided by the Government on this principle is quite insufficient to meet the wants of the country, being confined to the Professors at Dublin in connexion with the Museum of Irish Industry and to the Lecturers in the provinces paid out of the sum of £500 a-year appropriated to that object. This sum is totally insufficient to meet the demand. Last year only eight provincial towns could be provided with scientific instruction from this source, although applications were received from a much larger number, and the instruction given was limited to nine lectures at each place on one subject with four or five evenings of class instruction. Instruction is given under the existing system, for a merely nominal payment, to numerous persons belonging to the upper and middle classes who might be expected to pay for it themselves; and an adverse tendency is thereby created to the growth of a purely voluntary system of teaching. Lastly, if the existing system were not confined within narrow limits, it would be intolerably expensive. It could not for this reason be extended to the whole country. A course of lectures may be delivered at a few places, but salaried teachers, qualified to give constant instruction, could not be provided at all the places at which there is a demand for them.

III.—*Technical Instruction.*

One exception has been made in England to the general rule, that the teachers of science are not to be retained on fixed salaries by the Government. Mining industry is considered to be of such an exceptional character, that a school of mines is supported by the Government in London, on the understanding that it is to be made as technical and as self-supporting as possible. Another exception has been made in Ireland, by maintaining an Agricultural Professor in connexion with the Royal Dublin Society. We propose that both these exceptions should be recognised in the future arrangements in Ireland. Agriculture is the great industry of Ireland; and notwithstanding all the improvements that have been made, there is still so much ignorance, not to say uncertainty on the subject, as to justify the Government in providing any necessary means of instruction. Mining industry does not occupy in Ireland the prominent position it does in England, but it has made considerable progress of late, and without going the length of the Jermyn-street school, instruction might with advantage be given in Geology and Mineralogy with especial reference to mining.

Beyond this we do not propose that the exceptions should be carried. The teaching in the other sciences in connexion with the Museum of Irish Industry must, as already stated, be regarded as being more of a general than of an applied character. It is necessary that a person should be a good Chemist or Mechanist in order that he may successfully prosecute certain undertakings, but, being a good Chemist or Mechanist, he would have little difficulty in applying his knowledge to the appropriate industries. Indeed, he could hardly acquire the requisite scientific knowledge without also learning the proper mode of applying it, so far as it can be taught otherwise than by the actual practice of the art.

SPECIFIC RECOMMENDATIONS.

Having thus described the actual state of things and indicated our general opinions, we shall conclude by recapitulating the arrangements we have suggested, and by making certain other specific recommendations.

We have elsewhere fully explained the changes which should, in our opinion, be made in the constitution of the Council of the Royal Dublin Society, and in their financial arrangements, in order to place that Society in a satisfactory relation to the Government.

We recommend that the Museum of Irish Industry should be united with the Royal Dublin Society. As it is understood that arrangements are likely to be made for retaining Archbishop Marsh's Library in connexion with St. Patrick's Cathedral, the rooms which have been appropriated for its use in the building recently erected for the National Gallery may, we hope, be used, at any rate for the present, for the Irish Geological Collection; and such portion of the remainder of the collections in the Museum of Irish Industry as it may be determined to keep, may be placed in the new Museum of the Royal Dublin Society. This consolidation should be made on a principle of careful selection. Only the best specimens of each class should be retained, and the duplicates should be given to the Museums of the Queen's Colleges or wherever else they may be of most use. The specimens illustrative of the practical application of the Metals and the Models of mining machinery should all be transferred; but it should be carefully considered to what extent it will be desirable to deposit in the new Museum, the other industrial collections now in the Museum of Irish Industry.

There should, in our opinion, be two Professors attached to the Royal Dublin Society in connexion with Agricultural, and the same number in connexion with Mining industry.

The two former should be—

1st. The Professor of Agricultural Chemistry who is already on the establishment of the Royal Dublin Society. His salary should be raised to the usual rate of £200 a-year, and he should be allowed an increased sum for chemicals, and should be aided by the Assistant Chemist, now at the Museum of Irish Industry; and—

2nd. The Professor of Botany, whose Lectures have an important bearing upon Agriculture, especially in relation to the practical operations at the Botanical Garden. He is at present employed in connexion both with the Royal Dublin Society and the Museum of Irish Industry.

The two Professors in connexion with Mining Industry should be—

1st. The Professor of Mineralogy, who is already on the establishment of the Royal Dublin Society, but subject to the condition that a successor is not to be appointed to him. This condition must be rescinded if our recommendation is adopted; and

2nd. The Professor of Geology, who at present lectures in connexion both with the Royal Dublin Society and the Museum of Irish Industry.

As vacancies occur in these Professorships such modifications may be made as experience may suggest; but the objects to be specially kept in view should be Agriculture and Mining. The Professors should superintend the arrangement of the portions of the Museum to which their respective functions relate.

These four Professors should deliver lectures at the Royal Dublin Society under the direction of the Council; and the Professor of Agriculture should continue his Laboratory instruction and analyses. The members of the Royal Dublin Society and their families should have free admission to the Lectures and Laboratory instruction in consideration of their payments to the Society, but other persons should pay fees which should, in our opinion, be given entirely to the Professors. The Professor of Agriculture should prepare, free of charge, any analyses that may be required by the Government.

Supposing these changes to be made, the services of the Director of the Museum of Irish Industry, of the Professors of Physics, Chemistry, and Zoology, and of the Analytical Chemist, will no longer be required in their present capacity. We cannot too earnestly express our opinion that, on the ground both of justice and of public expediency, proper compensation should be awarded to them and to the persons in subordinate situations at the Museum until they are re-employed. We say, *on the ground of public expediency*, because, to do justice to the private interests involved, is happily an indispensable condition of every useful reform in this country.

It has been seen from the explanations in the early part of this Report, that a sum which cannot be estimated at less than £10,000 is required to put the Museum, Library, Botanical Garden, and Agricultural Department of the Royal Dublin Society into an effective state; but this outlay may be divided over two, and a part of it over three years. The consolidation of the two Museums will cause some further outlay; but, on the other hand, there will be a saving from the transfer of the cases. The fine spacious building in Stephen's-green occupied by the Museum of Irish Industry, will become available for any public purpose for which it may be required, or if it should not be wanted it may be let or sold to advantage.

Proper steps should be taken to make known throughout Ireland the nature and amount of the assistance afforded by the Science and Art Department to the industrial classes in procuring instruction in science. We feel persuaded that when these conditions shall be generally understood, the youth of Ireland will not be behind the other parts of the United Kingdom in availing themselves of the boon; and this quite as much from a just foresight of the bearing of such instruction upon their future prospects in life, as from any immediate expectation of reward. Numerous persons already engaged in tuition will be likely to qualify themselves to give instruction under the system; and it may be hoped that in Dublin, Cork, and other large towns, Professors of established reputation will take part in it, as has been the case in some places in England and Scotland. We would, however, suggest that, as artizans, properly so called, are comparatively few in this agricultural country, a liberal interpretation should, especially at first, be given to the term industrial classes, so as to include young men employed in shops or as subordinate clerks, who are in such circumstances that they could not easily pay for their own instruction.

All the arrangements connected with this transition state should, of course, be made under the directions of the Department of Science and Art. The provisional machinery of the Committee of Lectures will lapse with the termination of the peculiar arrangements which it was intended to support; but we recommend that the sum of £500 a-year should continue to be applied to the delivery of provincial lectures until the new system of instruction has come into operation in the provinces, and that the same course should be followed in respect to the Lectures now delivered at Dublin, which will not be included in the School of Agriculture and Mines at the Royal Dublin Society.

The Secretary to the Committee of Lectures will be entitled to compensation if his services should not be required in some other position. We have recommended these changes in the confident assurance that every just expectation raised under the former system, whether of continued employment or instruction, will be substantially satisfied by a proper equivalent.

OTHER GRANTS IN AID OF SCIENCE AND ART AT DUBLIN.

The other Institutions at Dublin which receive grants in aid of Science and Art, are—

The Royal Irish Academy, which combines the objects of the London Royal and Antiquarian Societies, and has acquired a high reputation for the learning and activity of its researches. The last annual vote was £500.

The Royal Hibernian Academy, which was formed on the model of the Royal Academy of London, and receives an annual grant of £300. It was inquired into by Mr. Macleod, in 1858, on behalf of the Department of Science and Art, and the annual grant was then appropriated entirely to the educational purposes of the institution.

The National Gallery for Paintings and Sculpture. This has been recently erected under the authority of two Acts of Parliament passed in the years 1854 and 1855, and the arrangements for completing its fitments and acquiring its contents are in active progress. An elaborate constitution, partly official and partly popular, has been given to it by the same Acts of Parliament.

The Zoological Society, which receives an annual grant of £500, and raises a larger sum from private subscriptions, and from the receipts at the door. This well-managed Society contributes in a high degree to the instruction and amusement of the public.

The annual grant to the Zoological Society is voted in the estimate of the Royal Dublin Society; but, besides acting as the channel for its payment, that Society does not exercise any interference with respect to it. Some advantage would be gained if all the Parliamentary grants in aid of Science and Art at Dublin were, in like manner, included in the estimate of the Royal Dublin Society, and were paid through its medium, inasmuch as they would then be annually brought under consideration in one point of view, and the Council of the Royal Dublin Society would have an opportunity of making any representation which the circumstances of the time might render proper in reference to them.

Beyond this, we cannot advise that the Royal Dublin Society should be vested with any control over the proceedings of the other Societies. Freedom of action is indispensable for the success of institutions which depend upon voluntary unpaid agency; and, even when there is some general connexion between the objects of such institutions, greater aggregate results, and even a greater disposition to co-operate, may be expected from a suitable division of labour and responsibility than from any consolidation that could be effected.

The long-established and comprehensive character of the Royal Dublin Society, has already made it to some extent a point of union for the other local institutions for the cultivation of Science and Art; and when its constitution shall have been strengthened, and its means of instruction enlarged in the manner we have recommended, this tendency to approximate is likely to be increased. Real public benefit would ensue from voluntary affiliation of this kind, even if it did not go beyond a general recognition of the precedence due to the Royal Dublin Society, and an occasional comparison of what is in progress in each institution, in order to secure harmonious action, and as much reciprocal aid as the nature of the case admits.

We submit the evidence taken by us, together with a letter which we addressed to Mr. Adderley and his reply; but it is proper to add, that in the conclusions at which we have arrived we were partly influenced by a variety of documentary information as well as by our own knowledge of facts.

FRANCIS BLACKBURNE.
RICHARD GRIFFITH.
C. E. TREVELYAN.
J. F. D. DONNELLY.

DUBLIN,
18th October, 1862.

MINUTES OF EVIDENCE.

2nd October, 1862.

L. E. Foot, Esq., examined.

I am one of the Vice-Presidents of the Royal Dublin Society, and was for many years one of the Honorary Secretaries. This Society was established in 1731, the object being the promotion of husbandry and other useful arts. It obtained its Charter of Incorporation in 1749. Its constitution and mode of government and appointment of officers are thus laid down in the Charter:— Object of Society. Constitution.

[Witness hands in copy of Charter and By-laws.]

> "And our will and pleasure is, that it shall and may be lawful to and for the said President, Vice-President, Treasurer, Secretaries, and Registrar, and the rest of the members of the said Society also above-named, or as many of them as conveniently can, within forty days next after the date of this our grant, to meet together at such time and place, as the said President, or any one of the said Vice-Presidents, shall appoint by summons, which the said President, or any one of the said Vice-Presidents, are by these presents empowered and required timely to issue for that purpose to the said members, or such of them as live within our city, or liberties of our city of *Dublin*, in our said kingdom, where they, or the major part of them then present, may nominate, elect, and choose new members, fill up vacancies in offices (if any should happen), choose clerks and other inferior officers and servants, as shall be thought necessary or useful for the said Corporation, to serve in said offices until the second *Thursday* in *November* following, unless they shall sooner die, resign or be removed.
>
> "And our will and pleasure is, that at the general meeting of the said Corporation, on the second *Thursday* in *November*, in all times coming (or in case of any emergency preventing their meeting on that day, then at the next meeting), seven at least being then present, whereof the President, or one of the Vice-Presidents, to be always one, shall be elected a President, and seven Vice-Presidents, to continue in their respective offices for one year, and until others be elected in their room, unless such President or Vice-Presidents shall sooner die, or resign his or their respective offices.
>
> "And our further pleasure is, that it shall be lawful for the said Corporation, or any seven of them, whereof the President, or one of the Vice-Presidents, to be always one, to elect on the second *Thursday* in *November*, in all future times (or in case of any emergency preventing the meeting on that day, then at the next meeting), a Treasurer, two Secretaries and a Registrar, and all such other officers and servants as they shall think needful for the said Corporation; and the persons so chosen shall continue in their respective offices until the second *Thursday* in *November* in the year following, and until others shall be chosen in their room, unless such person so chosen, or any of them, shall sooner die, be removed from, or resign their respective offices.
>
> "And our will and pleasure is, that the said Corporation at any of the three stated general meetings, seven members at least being present, whereof the President, or one of the Vice-Presidents to be one, shall have full power to make such by-laws, rules, and ordinances, for the good government of the said Corporation, as they shall judge meet and convenient. Provided such by-laws be not repugnant to the laws of our kingdom of *Ireland*, and that the same be confirmed by some succeeding general meeting, at which seven at least of the members shall be present, whereof the President, or one of the Vice-Presidents to be one; and the same method shall be observed in the altering or repealing any such by-laws, rules, and ordinances, after they shall be so made and confirmed."

Thus the management of the affairs of the Society was vested in the Society at large, and this state of things continued until 1836, when there was an inquiry into the affairs of the Society by a Committee of the House of Commons, who recommended that the Change in constitution.

Council.

management of the Society should be confided to a Council subject to direct control over its proceedings by the Society at large; and that newspapers should be abolished. After some difficulty, only on the question of newspapers, all points required were conceded, a Council was appointed, and its powers were determined by by-laws framed upon the charter as follows:—

Powers and duties of Council.

> "It shall exercise a general superintendence over the affairs, officers, and servants of the Society, and over every branch of its establishment; and shall have power to make such orders and regulations for the management thereof as it shall deem necessary or expedient (the same not being contrary to the existing laws of the Society), with such restrictions as are hereinafter mentioned; such orders and regulations to be subject to the control of the Society, as hereinafter more particularly stated.
>
> "The Council shall have power, at its discretion, to require from each section or Committee, that the minutes of its proceedings be laid before it; and shall also be empowered to make such references as it shall think proper to any Committee or section, upon any matters within its department; and the Committee or section so referred to shall be bound to make a report on the subject of such reference to the Council, who shall be enabled to make such orders or regulations thereon, with the concurrence of the Committee, as it shall deem expedient, the same not being contrary to the existing laws of the Society; which order or regulation shall then be carried into effect; provided that the Council shall make no order or new regulation on any matter within the department of such Committee, without the concurrence of said Committee. Provided also, that if the Council and the Committee of any department shall not concur in any new regulation or order in such department proposed by the Council, the same shall be referred to the Society, who shall make such order thereon as it shall think proper, which shall be carried into effect by the Council and Committee respectively.
>
> "The Council shall cause minutes of all its proceedings to be entered in a book, such book to be accessible to the members of the Society; and the Council shall specially report to the Society at each of its stated general meetings. At each meeting of the Society the printed minutes of the Council since the preceding meeting of the Society shall be laid before it.
>
> "In case of any emergency requiring an expenditure which could not properly be delayed from one meeting of the Society to another, the Council is empowered to expend a sum not exceeding £50 on any given object.
>
> "The Council shall have power to make by-laws for its own regulation, provided such by-laws be not opposed or repugnant to the charter or by-laws, or any express regulation of the Society.
>
> "The Society shall have power and authority to rescind or alter any order or regulation of the Council, of a prospective nature, at the meeting of the Society next but one after such order or regulation shall have been made; but no order or regulation of the Council shall be altered or rescinded unless notice of a motion to that effect be given at least seven days before the said meeting of the Society at which same may be proposed to be altered or rescinded; such notice to be given in writing, signed by the mover, to the Assistant Secretary, to be by him posted in a conspicuous part of the Society's conversation-room."

Change of functions.

By that constitution the privileges of the Society were cut down to a veto upon certain acts of the Council. This is the present constitution of the Society; but the functions of the Society underwent a change in 1854, when the following communication was received from the Department of Science and Art:—

> "The Royal Dublin Society is to be informed that their lordships will recommend the vote for its museum to be given on the understanding that it will be devoted only to the purchase of such objects as may be necessary for a Museum of Natural History, including botany, zoology, and mineralogy, viewed in their scientific, but not in their technological, relations; and also for a Museum of Agriculture. This limitation refers to future additions acquired by purchase, and is for the purpose of preventing the expenditure of public money on similar objects in two museums, both accessible to the public, and in close proximity to each other; but it does not extend to the collections already possessed by these museums, or of which they may in future become possessed by donation.
>
> "The Royal Dublin Society is also to be informed, that while my lords will recommend an increased sum to be voted for its exhibitional objects, they will at the same time propose that the Society should ultimately be entirely relieved from the superintendence of its educational staff, in order that the latter may be made

available to the public for instruction by means of the illustrations of the two separate museums of the Royal Dublin Society and of the Museum of Irish Industry, and also that it may be used for the purpose of affording to the provincial towns of Ireland the benefits contemplated by the general educational scheme intrusted by Parliament to this Board. Should this proposal be sanctioned by Parliament, those Professors who would be brought immediately under the new arrangements would be responsible to this Board in regard to the discharge of their duties, although the members of the Royal Dublin Society would still have the benefit of their lectures in illustration of the collections of the museum and gardens."

The society were greatly opposed to this proposition of depriving them of their educational functions, and remonstrated against the proposed change in the following terms:—

"We have been desired to state, for the information of their lordships, that the minute in question has been received and considered with the deference and respect to which every communication emanating from any department of Government is entitled; but inasmuch as most important changes in the character and constitution of the Society appear to be contemplated by their lordships, and are now announced for the first time as conditions, without previous communication or any official inquiry to demonstrate their urgency or justice, the Society do not consider it will appear disrespectful to their lordships if in such a case of surprise they have unanimously determined to remonstrate against some of those conditions, which they regard as proceeding from a misconception of the history and constitution of this body, and inadequate to obtain their proposed objects.

"The most important, and by far the most distasteful, of the conditions tendered to the Society for acceptance is that which proposes 'that the Society shall ultimately be entirely relieved from the superintendence of its educational staff,' thus reducing the functions of this ancient corporation in future to those of a mere exhibitional character.

"As the Department of Science and Art in connexion with the Board of Trade is of recent creation, and as its suggestions as to the best means of extending to Ireland the benefits of industrial education may be fairly regarded as experimental, it cannot appear irrelevant on a question of this nature, involving the abolition of an existing system for the substitution of a new one, to remind their lordships that the primitive and essential character of the Royal Dublin Society, from its origin in the year 1731 to the present time, has been *educational and practical*, and that any change which would deprive it of that character must appear a transition of doubtful result.

"In the year 1749 it was incorporated by charter for 'promoting husbandry and other useful arts in Ireland.' In the year 1761 it received its first parliamentary grant for the encouragement of agriculture, manufactures, and planting. In the year 1785 the Act containing the grant to the Society (25th Geo. III. cap 61) directed and provided for the support of their previously existing drawing schools and the cultivation of such *useful sciences* as the Society should think fit. In the year 1790 Parliament directed that a botanical garden should be established and maintained. Subsequent Acts of Parliament provided for a cabinet of mineralogy and a repository for such cabinet, thus laying the foundation of the Society's present extensive Museum. Afterwards the cultivation of chemistry was added to that of mineralogy, and a professor appointed to teach both sciences. Under the same auspices a lectureship in natural philosophy was established. The Society have thus been moulded by the hand of the legislature into the form they now retain; they were selected by the State as the fitting organ to improve the country and instruct the people through those several departments, which were confided to its care and management, and the State has, up to the present time, recognised the obligation of supporting them.

"It is matter of just surprise and regret to the Society that with such parliamentary authority of the ability and suitableness of this institution to be made a great instrument for the diffusion of *practical science* throughout Ireland, Government should have deemed it necessary or economical to have established in close proximity, and for nearly similar objects, such an institution as that of the Museum of Irish Industry; but more especially is it cause of astonishment that the Board of Trade should utterly ignore all such testimony, and subject the Society, without complaint or investigation, to the deprivation of all their educational staff and functions, hitherto constituting the most effective means of carrying out the objects for which they were instituted.

"It is, no doubt, proper to pay due regard to the reasons stated in the minute for the above intention, viz., 'in order that the latter [that is, the Society's educational staff] may be made available to the public for instruction by means of the illustrations of the two separate museums of the Royal Dublin Society and of the Museum of Irish Industry, and also that it may be used for the purpose of affording to the provincial towns of Ireland the benefits contemplated by the general educational scheme, intrusted by Parliament to this Board.

“The object of their lordships appears to be to devise means of supporting out of the public funds, and by a compromise at the expense and injury of the Royal Dublin Society, the Museum of Irish Industry,—an institution recently established in this city by the Commissioners of Woods and Forests, with a view to the exercise of duties already in great part discharged by the Royal Dublin Society, and which could have been, and can still be, wholly and efficiently discharged with great economy and advantage to the country by a small and comparatively inexpensive addition to the staff and adjuncts of this Society.

“We are instructed respectfully to remonstrate against the assumption of this Society's inability or disinclination to discharge its educational trusts as heretofore, implied by the transfer of these important functions to other hands.

“The Society are further of opinion that the appointment of professors by the Board of Trade, placed under direct responsibility to that Board alone, with divided duties to perform, yet confined exclusively to lecturing, would neutralize the benefits hitherto experienced from the professors attached to this institution. Independently of imparting instruction by lectures, the Society has found the greatest possible advantage to result from the control and undivided authority it possesses over officers of its own appointment, the command they possess upon their time and services, whether by directing their investigations to matters of a practical and scientific nature on reference from the public or members, or by reading papers at their public meetings.

“We are further instructed to remind their lordships that this Society yielded to the suggestions of the Committee of the House of Commons in the year 1836, conceiving that they were calculated to carry out effectually the object of their charter, and, with the sanction of the Government, framed a new code of by-laws for the management of the Society. They established a council, consisting of thirty-four members, and eight standing committees, each of eleven members, to preside over as many departments of the Society; they limited their ordinary meetings to one every month instead of weekly, as heretofore; and conferred on the Council a considerable amount of authority. Besides the standing, there are other committees, such as those of evening meetings and of provincial lectures. This has been the law of the Society since the year 1837, which has been found to answer all its purposes satisfactorily, and has succeeded in engaging and interesting in the affairs and object of the Society at least 120 members, who devote their time and attention to its concerns with no other reward than the consciousness of doing public good.

“The Society at present numbers above 1,000 members, who all unite in the common object of promoting the material interests of Ireland. Should their lordships deprive the Society of the power they possess through their educational staff in carrying out this most important duty, they fear the public will for the future find but little inducement to continue that support which has, in times past, been so freely given.

“If to extend to Ireland the benefits of industrial instruction has been one of the objects in constituting the Department of Science and Art, in this Society already exists an instrument for the purpose, fully organised, of ready application, and appreciated by the public. Should it not be deemed consistent with their lordships' views to make more fully available than at present the resources for industrial instruction offered by this Society, it is hoped that its existing means of usefulness may not be curtailed.

“The Society make the foregoing observations in the way of respectful remonstrance against what they conceive an objectionable condition referred to in their lordships' minute: they consider that before fundamental changes, involving the infliction of severe injury on a time-honoured and useful national institution, are tendered for acceptance under the implied penalty of losing the parliamentary grant, which has been enjoyed for ninety-three years, justice requires that inquiry should precede judgment.”

Subsequently a deputation went from the Society to the Board of Trade, and after much discussion, a compromise was proposed by Mr. Cardwell and accepted by the Society, that a joint board of four members of the Society and four appointed by the Government, should have the management of a certain number of lectures here and a certain number in the country; the management of what was called the technical course was handed over to the Museum of Irish Industry.

At present the Council has, in my opinion, full control over the affairs, officers, and servants of the Society. The decisions of the Council as at present constituted, can be set aside by the Society at large, but I have never found the power exercised injuriously to the Society, nor injuriously to the harmonious relation between the Society and the Government. The Society at large has the appointment of the officers, a power which it has always exercised judiciously and properly, and without any other object in view but the well-being and advantage of the Society. They have always selected the best men irrespective of every other consideration. For instance, we selected Sir Richard Griffith at one time as our Professor of Mining and Mineralogy, Sir Robert Kane as our Professor of Chemistry, and I think all will admit that no selections could be better. Our elections of officers have been exercised without cabal or undue influence. There has not been at any time any serious controversy between the Society and the Government—none that I recollect but one in reference to the abolition of the newspapers; this was when Lord Fortescue was Lord Lieutenant. The grant was withheld one year. We laid our case before Lord De Grey, his successor, who advised us to give up what we considered our rights; we did so, and the following year we got the grant of that year as well as the lapsed year's grant.

Disputes.

Was there not a dispute also between the Society and the Council, and the Society and the Government with respect to the Sunday opening of Glasnevin Garden?—There was; that was a very unpalatable proposition; the experiment of opening such places to the public on Sundays was an untried one in this country, and its probable results were viewed with great apprehension by the majority of the members. The question came before the Society twice; on the second occasion it was carried by a small majority.

Have there not been disputes in reference to officers between the Council and the Society, and have not the decisions of the Council been overruled in these cases?—There have been only two cases of that kind; one was the case of the Librarian, who was recommended by the Council to be dismissed for gross misconduct. That recommendation was not confirmed by the Society, and this led to the retirement of some of our most influential members. The other case was that of Mr. MacManus, whose retirement was recommended by the Council; he appealed to the Society at large, who did not, however, support his views, and he subsequently apologised to the Council for the step he had taken.

Change in Council.

Are you aware that the Council are of opinion that the executive body of the Society does not possess sufficient control over the management of the affairs of the Society; and that they have recommended that the Council shall have the general management of the Society, and the exclusive control over the paid officers, including the power of appointing and dismissing them?—I am not aware that the Council have come to any such resolution.

[The following recommendation of the Council is handed to Mr. Foot, who reads it.]

"Having thus gone into a short sketch of the origin and gradual growth of the Society, we have now to call the Council's attention to the important intimation, that the Treasury are of opinion that, from certain facts which come before them, the executive body of this Society (the Council) does not possess adequate control over the general management of the affairs of the Society, and in particular over its officers; and that, to insure full security for the proper appropriation of the Parliamentary grant, the powers of the Council in these respects should be enlarged. On this point your Committee have to observe, that it is clearly essential to the well-being of the Society that the relations between the Government and the Society should be harmonious; and, looking to all the facts of the case, and the analogy between this Society and other large public bodies, your Committee are not prepared to dispute the ground taken up by the Treasury; and they would recommend that the Council take it into consideration to suggest to the Society such a modification of the charter and by-laws as will delegate to the Council the general management of the Society, and give them exclusive control over its paid officers and servants, including the power of appointing and dismissing them, as well as that of regulating their duties. Such a change might render desirable some alteration, so as to cause the action of the Society at large in relation to the Council to be more immediate and direct, and render the Council to a still larger extent than at present the exponent of the opinion of the body at large.

"With this view the Committee would recommend the following modifications in the constitution of the Council and Committees. The Society to elect fourteen members of Council (instead of nine, as at present), of whom five should retire each year, and be ineligible for re-election that year. That the number of standing Committees should be reduced from eight to seven, by amalgamating the Natural Philosophy and Chemistry Committees. That each Committee should elect a Chairman and Vice-Chairman; and that such Chairman, or in his absence the Vice-Chairman, should have a seat on Council, which would thus consist of fourteen members elected directly by the Society; seven returned by the Committees; seven Vice-Presidents; and two Honorary Secretaries—in all thirty members.

"The restriction which prevents the same persons being elected on the Council and Committees should be removed, so that the election for both might be held at the December meeting, and the new Council would come into office on the 1st of January. Many practical inconveniences which are at present felt would thus be removed, and the code of by-laws much simplified. And as the members of Council directly returned by the Society at large would outnumber those sent up by the Committees in the proportion of two to one, the opinions of the members generally could not fail to be fairly represented, and to carry their adequate weight in the Council."

This is all new to me; I must have been away when this decision was come to.

SIR R. GRIFFITH.—I believe you were in the country. That is the decision of the Council, but it has not been yet presented to the general meeting of the Society, because, I believe, there has been no general stated meeting since?

Mr. *Foot*.—It would seem to me that that new constitution would render an alteration in the Charter necessary, and I think it would be desirable not to meddle with the Charter. The Society attach great importance to the Charter; they are as proud of it as the Royal Society is of theirs, and they would be very unwilling to part with it. The Society would not have any objection to give increased control to the Council; but they have certain privileges, the principal of which are the veto, and the election of officers and Council, with which they would be very unwilling to part. Except these I do not know any privileges that the members of the Society possess over those enjoyed by the general public.

If the Council remains as it is at present, is there any organ or body in the Society with whom the Government can communicate, upon the permanency of whose decisions reliance can be placed?—Yes; the Council for the year.

Are not their decisions liable to be overruled?—Yes; but that is a power that is seldom exercised.

For the power of veto, of which you speak, it is proposed to substitute a more full and direct action by the Society in the election of the Council, all the other privileges remaining the same?—This right of veto is the only substantial privilege the Society possesses. Its library, gardens, and lectures, are all free. This is its corporate right, and I do not see how it can be parted with. More importance is attached to the veto than to the election of officers. This Society interests in its working a vast number of highly influential and highly educated men, and the giving these increased powers to the Council would, I apprehend, diminish that interest, and anything that would produce that effect would be unfortunate indeed. Here is a list of the acting Committees, and a glance over it is sufficient to show what sort of men they are who interest themselves in the working of this Society. The abolition of the veto would be extremely distasteful to the Society.

Extra-Lectures. In the last annual report of the Royal Dublin Society, it is stated that in addition to the courses regulated under the authority of the Committee of Lectures, the following were delivered :—

Agriculture, . . .	E. W. Davy, M.B.
Æsthetics, . . .	H. Macmanus, R.H.A.
Histoire de France, . .	M. Desire Pontet.
L'Etat de Louis XIV., . .	,,
Air, Water, and Soils, . .	E. W. Davy, M.B.
Artificial Manures, . .	,,
Political Economy, . .	J. S. Leatham.
,, . . .	R. W. MacDonnell,
,, . . .	Edward Gibson.
Zoology, &c., for Zoological Society,	Dr. Harvey.
,, . . .	Dr. M'Donnell.
,, . . .	J. B. Jukes.
,, . . .	Rev. Sam. Haughton.
History of French Language, .	M. J. Frings.

Under what circumstances were these lectures delivered, and were they free to the public?—All these were voluntary lectures, except Mr. Davy's; they were gratuitously delivered, and were free to the public. We are glad to throw open our doors to any men of character and ability who are willing to lecture on subjects that come within the objects of the Society, and we consider these lectures to be a very satisfactory part of our proceedings.

Regular Lectures.

Collections. Consolidation.

Part of the lectures under the "Committee of Lectures" are delivered here, and part in the Museum of Irish Industry; is that a satisfactory arrangement?—I cannot conceive why there should be lectures in both places. The circumstances connected with this are explained in the extracts I have already read from the letter from the Science and Art Department and our remonstrance. I am aware of the nature of the collections here and in Stephen's-green. I think it is most desirable that they should be consolidated, and that the consolidation should take place, because the Museum of Irish Industry has not attached to it the public confidence and regard. There are no members attached to it, while that is the valuable part of our Society, in whose operations upwards of 1,000 persons are personally interested. A single institution of the sort would be sufficient for the wants of the city. If the transfer is made, a selection only from the Museum of Irish Industry collection should be transferred, as many of the things they have are duplicates of ours, while we would altogether dispense with their illustrations of manufactures.

Audience.

Consolidation.

Wants.

Powers of Council.

Is there any justification for providing, at the public expense, for the education of the class of persons who attend the lectures here?—I see all classes of persons attending these lectures. I think the greater number of persons who attend these lectures are of the middle rank, to whom it is an object to educate their children as economically as possible. Persons of the humble and middle classes avail themselves largely of these lectures. I would say that in such a city as this it is absurd to maintain two establishments running in parallel lines and in close proximity to each other. The educational functions of the Museum of Irish Industry are shared with us, and I believe that if our grant was increased we could do a great deal more in that way than they could possibly effect. Our great want is the completion of the Museum and the making it what it should be. I believe that our collections are sufficient to fill it above and below. If the Stephen's-green collections were transferred to us we would require additional room. As to enlarging the powers of the Council, I think the present constitution of the Society works well and harmoniously. Perhaps there might be greater power given to the Council if consistent with the Charter, but you should interfere as little as possible with the Charter rights of the members

It is a great matter to have a Society that interests so many gentlemen; their Committees give active employment to 100 gentlemen of the highest education and intelligence; they have but very little extent of corporate privilege, and if you take that away, you will take away the interest which the members take in the operations of the Society. Ireland is very proud of this Society. It has latterly gone through many phases, constantly altering to meet the views of the Government. We had thought in 1836 that its constitution was permanently settled, but in 1854 the Museum of Irish Industry comes across our path and makes a material change in our constitution, The hope was held out to us that our grant would be increased, but that hope has not been realized—our grant is the same now as when this representation was made in 1854. We have fulfilled our part of the contract, the Government have not fulfilled theirs.

E. W. Davy, Esq., m.b., m.r.i.a., examined.

Agriculture. Lectures.

I am Professor of Agriculture and Agricultural Chemistry to the Royal Dublin Society. My duties are—1st, to deliver annually, in the Society's Theatre, two courses of popular lectures on Agricultural Chemistry; 2nd, to give instruction to working pupils in the Society's Laboratory in Analytical Agricultural Chemistry; 3rd, to perform Analyses of Soils, Manures. Agricultural Produce, &c., for the Members of the Society and the public, according to a regulated scale of moderate charges; 4th, to undertake such investigations of a Chemico-Agricultural nature, as the Society or the Council may from time to time require; 5th, to superintend the arrangement and be responsible for the efficiency of the Agricultural Museum of the Royal Dublin Society.

Subject of lectures.

The courses of Public Lectures, which I have given since my appointment, and the years of their delivery, are as follows:—In 1859, the session after my appointment, I gave a course on "the Elements of Agricultural Chemistry;" this was the only public course of Lectures I gave in the Society that year, in consequence of our arrangements being incomplete, and my having (at the recommendation of Dr. Playfair on the part of the Department of Science and Art) to visit different schools of agriculture in other countries before establishing my regular classes.

In 1860, I gave two courses; the first was on "the Rise and Progress of Agriculture and the Scientific Principles engaged in its successful prosecution;" and the second on "the Atmosphere, Water, and Soil of our globe, considered in their relations to Vegetable and Animal Life, and the Nutrition of Plants and Animals;" both those courses were delivered in the day time.

In 1861, the first course given was on "the Structure and Functions of the chief parts of Plants, and the Physical and Chemical Agencies of Heat, Light, Electricity, &c, in Vegetation as applied to Agriculture, Horticulture, and Rural Economy;" the second course was on "the History, Chemical Constitution, Properties, and Agricultural applications of the most important Natural and Artificial Manures, and the means by which their various adulterations may be detected."

In 1862, the first course I gave was on "the Chemistry of Food, embracing the most important articles of our Diet and Agricultural Produce, together with their impurities and adulterations," and I purpose continuing this subject next year, as it appeared to excite a good deal of public interest, and a course of twelve lectures, I found, to be quite insufficient for its due explanation. The second course given in this year was on "the Chemistry of the Soil and its relations to Vegetable and Animal Life."

Since the session of 1860, one of the annual courses has been given in the evening, to accommodate a class of persons whose avocations prevent their attending day lectures.

Audience.

The morning courses are made as popular and generally instructive as possible, as they are attended by a mixed class, including ladies and a number of young persons from different schools which break up at that hour. The evening courses are made more especially agricultural, and are attended principally by those more immediately engaged in the pursuit of agriculture. The pupils from the Albert Agricultural Institution at Glasnevin attended them in 1861; they did not do so last year, in consequence, I believe, of some local arrangement.

Fees and competition.

The attendance at both courses is entirely gratuitous; but pupils who choose to go in for examination, and compete for prizes at the end of the *day* course, are registered, and pay a small fee of 2*s*. 6*d*. each. There are generally twelve so competing. £5 is the total sum awarded in prizes to the Lecture-room class; last year there was £6—£1 of an unclaimed prize having remained from the former year. There is no registration of students, and no examination for prizes in connexion with the evening course.

Attendance at lectures.

The average attendance at the lectures has been between one and two hundred; it is about 150 in the day, and 100 in the evening. This difference of attendance arises from the day course being of a more popular character, and of greater general interest; and the evening course being special, and to some extent exclusive.

Practical instruction.

In addition to these lectures, I have given each session, since my appointment, a course of practical demonstrations in Analytical Agricultural Chemistry, in the Society's Laboratory, the average number of which each session has been twenty. The students attending these demonstrations pay a fee of £1 each; they manipulate themselves, and are furnished with re-agents, and all appliances necessary for their operations.

Competition.

At the end of that course, an examination is held and prizes to the value of £5 awarded for superior answering. The majority of the students in that class compete, but there is not the same competition as in the lecture-room class, because, having worked together, each knows the powers of the other, and those only compete who feel they have a chance of success. Eight is about the average number of pupils who attend the laboratory class. In this practical class we confine ourselves to the examination and analysis of soils, agricultural produce, and of manures, with a view to determine their value and detect adulteration.

Persons who attend.

The pupils are partly country gentlemen and country persons engaged in the manufacture of manures.

Subjects of instruction.

I confine myself as much as possible to Agricultural Chemistry, in order not to interfere with the Professor at Stephen's-green, where General Chemistry is treated of. If the demonstrations were to include General Chemistry, I should have much larger classes, owing to their embracing subjects interesting to a greater number of persons. But even though the number who have hitherto attended those demonstrations is small, I consider that the instruction given is calculated to be of much public utility. I would, however, prefer making my laboratory instruction more general, if it was considered desirable.

Expense of working.

The whole expense of working this department is £28, which sum is allocated for the purchase and repairs of apparatus, and for chemicals, &c. That sum is quite insufficient; and, in consequence, I am unable to obtain many articles of apparatus necessary to keep up with the progress of the science. For instance, I have not been able to procure a good microscope, and have been obliged to use an old one of my own, which is quite inadequate for my purposes. I avail myself, from time to time, of the

Utility of Museum.

specimens and models from the Society's Agricultural Museum. I think this Museum may be made highly useful to the public; but it is now only getting into working order. I am responsible for the efficiency of the Agricultural Museum, and since my appointment have assisted the Curator in its arrangement. It has been greatly improved the last three or four years; but still a good deal remains to be done in the way of arrangement. I attach great importance to the information afforded by the Agricultural Museum, as illustrative of the progress of agricultural industry. I have nothing to do with the Agricultural Hall. I conduct a good many analyses of soils and manures in the year, independent of those effected by my classes. Of the sixty-four analyses, stated in the report to have been performed last year, some, were performed by my pupils during the time of practical instruction.

Direction of department.

I am under the direction of the Committee of Chemistry as applied to Agriculture. They meet at eight stated times during the session. They have the disposal of the £28 allocated to this department; so when I want any article of apparatus or improvement effected I apply to them. They have the arrangement of my lectures, and control over all my duties. I do not submit my syllabuses to them, as it is not considered necessary.

Suggestions for improvement.

The suggestions I have to make for the improvement of the department are—that my salary should be increased to £200, making it the same as that of the other Professors, as I consider that my present one of £150 is quite disproportionate to the amount of duties I have to perform; that a chemical assistant should be provided, which every well-appointed laboratory possesses; and that the sum for the working of the department should be increased. The Chemico-Agricultural Department had, before my appointment in 1858, £120 more than at present. The Professor had £200; there was an assistant at £50; and £48 was allocated for chemical apparatus, &c. Now, the Professor has £150; there is no assistant; and the allocation for its apparatus is reduced to £28. This was done by an arrangement with the Department of Science and Art. The late Professor, whom I succeeded, was, for many years, Professor of General as well as of Agricultural Chemistry to the Royal Dublin Society; in 1854, at the desire of the Department of Science and Art, his duties were confined to Agricultural Chemistry, and from that time up to the period of his decease he held the appointment of Professor of Agricultural Chemistry to the Royal Dublin Society, and received a salary of £200. I suggest that that salary should be restored. An assistant is required to aid the Professor in conducting analyses, teaching the practical pupils, making preparations to illustrate the public lectures, and assisting in carrying on different original researches in the laboratory. At present I have no one to assist me but a porter, whose duties are not alone confined to the Chemico-Agricultural Department, and whose chief business connected with it is to keep the rooms and apparatus clean and light the fires. The present sum of £28 is totally insufficient for the effective working of this department. As to the Agricultural Museum, the principal suggestion I have to make is, that the entrance to the Agricultural Hall in Kildare-street should be opened, by which means this interesting and instructive Museum of the Society would be rendered much more accessible to the public. I am at present engaged making for this Museum a "Food Collection," somewhat similar to that in the Museum of the Department of Science and Art, South Kensington, and am in communication with Dr. Lankester, the Superintendent, on that subject; and I have no doubt, when this collection is completed, it will add much to the interest and public utility of the Agricultural Museum of the Royal Dublin Society.

William Edward Steele, esq., M.D., examined.

Meetings of Society.

I am Assistant Secretary to the Royal Dublin Society. The charter of the Society prescribes the holding of three stated general meetings: one on the second Thursday in November, one on the first Thursday in March, and one on the first Thursday in June; the session of the Society extends from November to June. Besides these, general meetings are held on the first Thursdays in November and December, and on the last Thursday in each of the other months during this session.

Election of Members.

As to the election of members. At any of these meetings it is competent for one member to propose and another to second the admission of a candidate. When so proposed and seconded, his name is hung up in the rooms for one month. At the end of that time he is balloted for in the usual way, and becomes a member if he is found to have a majority of the votes. Persons are elected members from all parties, without any reference whatever to religious or political principles. In the election and all subsequent proceedings every thing is conducted with the strictest impartiality—in fact, I have never heard the matter of religion or politics even whispered.

Nature of membership.

There are two classes of members, annual and life members. The former pays an entrance fee of three guineas, and an annual subscription of two guineas; the life members pay twenty guineas, and are thenceforward free; but it is competent at any time for an annual member to become a life member upon payment of £15. The great majority,—two-thirds,—are life members. This gives a more permanent interest in the welfare of the Society, and also secures a higher class of members.

Council.

The Council consists of three classes. First, the honorary officers, that is, the seven Vice-Presidents and two Honorary Secretaries; secondly, the Chairman and another member of each Standing Committee; thirdly, nine members elected by ballot from the general body of the Society. The Standing Committees return the names of their Chairman and their second representative, and at the next monthly meeting after that the ballot takes place for the nine from the general body of the Society.

Change of Members.

One-third of the Council retires annually, a change which is effected by requiring that each of the Standing Committees shall return at least one member who has not served upon the Council in the past year, and that three at least of those members chosen by the Society at large shall be ineligible for re-election.

Council, how chosen.

The mode of election of the nine Members of Council chosen by the Society at large, is as follows. The names of the nine existing Members of Council, arranged in the order of their election in the previous year, are printed in lists, to which are appended in alphabetical order, with the years of their admission respectively, any additional members proposed at the preceding meeting of the Society. In balloting each member is instructed to mark with an asterisk the names of such candidates, not more than nine in the whole, and of whom not more than six shall have represented the Society during the year then passed, as he may wish to elect. And six at least of those who have served upon the Council during the previous year, together with three of those proposed as new members as shall have the largest number of votes respectively, are elected as members of the new Council.

Standing Committees.

The eight Standing Committees are each chosen annually, as follows. Previously to the day of election each Committee prepares a balloting list, consisting of seventeen names, out of which eleven are to be selected as the Committee. These balloting lists consist of the names of those members of the Committee who have attended one-third at least of the Committee meetings held in the past year, together with so many other names of members, also selected by the Committee, as shall make up the entire number of seventeen. The Society elects eleven names out of the entire as the Committee.

By-laws.

The power to make by-laws is confined to the stated general meetings. And when a by-law is passed at one of these meetings, it must be hung up in the Society's room until the next stated general meeting; and if it be then confirmed, it becomes binding.

Privileges of Members.

The privileges of members are: The power to borrow books, to introduce readers to the library, admission to any of the exhibitions of the Society, and reserved seats at any of the lectures. The members are, in fact, free of the house and all that it contains.

Powers and duties of Council.

The powers and duties of the Council are thus laid down:—

> "It shall exercise a general superintendence over the affairs, officers, and servants of the Society, and over every branch of its establishment; and shall have power to make such orders and regulations for the management thereof as it shall deem necessary or expedient (the same not being contrary to the existing laws of the Society), with such restrictions as are hereinafter mentioned; such orders and regulations to be subject to the control of the Society, as hereinafter more particularly stated.
>
> "The Council shall have power, at its discretion, to require from each section or Committee, that the minutes of its proceedings be laid before it; and shall also be empowered to make such references as it shall think proper to any Committee or section, upon any matters within its department; and the Committee or section so referred to shall be bound to make a report on the subject of such reference to the Council, who shall be enabled to make such orders or regulations thereon, with the concurrence of the Committee, as it shall deem expedient, the same not being contrary to the existing laws of the Society; which order or regulation shall then be carried into effect; provided that the Council shall make no order or new regulation on any matter within the department of such Committee, without the concurrence of said Committee. Provided also, that if the Council and the Committee of any department shall not concur in any new regulation or order in such department proposed by the Council, the same shall be referred to the Society, who shall make such order thereon as it shall think proper, which shall be carried into effect by the Council and Committee respectively.
>
> "The Council shall cause minutes of all its proceedings to be entered in a book, such book to be accessible to the members of the Society; and the Council shall specially report to the Society at each of its stated general meetings. At each meeting of the Society the printed minutes of the Council since the preceding meeting of the Society shall be laid before it.
>
> "In case of any emergency requiring an expenditure which could not properly be delayed from one meeting of the Society to another, the Council is empowered to expend a sum not exceeding £50 on any given object.
>
> "The Council shall have power to make by-laws for its own regulation, provided such by-laws be not opposed or repugnant to the charter or by-laws, or any express regulation of the Society.
>
> "The Society shall have power and authority to rescind or alter any order or regulation of the Council, of a prospective nature, at the meeting of the Society next but one after such order or regulation shall have been made; but no order or regulation of the Council shall be altered or rescinded, unless notice of a motion to that effect be given at least seven days before the said meeting of the Society at which same may be proposed to be altered or rescinded; such notice to be given in writing, signed by the mover, to the Assistant Secretary, to be by him posted in a conspicuous part of the Society's conversation-room."

The Council exercises a certain amount of superintendence over the affairs of the Society. The finances of the Society are placed in its hands. It has no power to make laws that will control the Society at large. The Council is quite under the control of the Society. The cases are not distinctly laid down in which the acts of the Council require the confirmation of the Society; but any thing different from the usual routine is submitted to the Society for confirmation. The Society very seldom decides against the Council. In all ordinary cases the Council has the power to decide, reporting to the Society, but not for confirmation. The cases submitted to the Society are those which are selected by the Council itself. The Committees report to the Council, and the Council submits their recommendations to the Society at large. The Committees are in official relation with the Council only, and not with the Society at large. The Committees report their proceedings to the Council from time to time, and these reports are laid before the Society by the Council.

Function of Committees.

Agricultural Committee.

Shows.

As to the functions of the Committees:—and first, the Agriculture Committee. The functions of this Committee relate almost exclusively to making all the necessary arrangements for the agricultural shows, fixing the prizes, selecting the judges, distributing the prize lists, and superintending the arrangements in the show-yard. The duties performed by this Committee are similar to those performed by the Voluntary Agricultural Societies in England and Scotland. The Society holds two shows every year, and this Committee has charge of all the arrangements. The annual average expenditure on these is about £1,500, of which £250 is appropriated from the grant. If the receipts, which are variable and dependent on the weather, fall short of the expenditure, the sum is made good out of the general funds. There has not been any proposition brought forward to amalgamate the Royal Agricultural Society of Ireland with this Society, for the management of these shows. I am not prepared to say whether it might not be arranged with the Royal Agricultural Improvement Society to carry out these shows. The receipts of the last show were about £1,060; but the receipts are very variable.

Professor of Chemistry.

Chemical department.

Previous to 1854 we had a Professor of general Chemistry. Since then the Professor has confined himself to Agricultural Chemistry, and acts under the direction of the Committee of Chemistry as applied to Agriculture. The Science and Art Department. after some negotiations, consented to the retention of this Professor as Professor of Agriculture; but they arranged that his emoluments should be reduced, and the expenses of the department reduced also. The sum allotted to that department is not sufficient for its efficient working. The Professor of Agriculture gives two courses of public lectures and one of practical laboratory instruction. I have never attended his lectures, but the number of persons attending, as exhibited by the report, shows that a considerable amount of interest is attached to them. The Professor of general Chemistry is attached to Stephen's-green. I am not able to speak of the class of persons who attend the lectures of the Professor of Agriculture, but I know that in one session they were attended by the pupils of the Agricultural Model Farm.

Agricultural Museum.

Committee of Manufactures.

The Agricultural Museum is in charge of the Curator, Mr. Corrigan, but Professor Davy is responsible for its efficiency. This Museum is managed by the Committee of Manufactures, agriculture being the staple manufacture of Ireland. This is a financial and advising Committee. It meets monthly, receive from the Curator his requisitions for work to be done or purchases to be made, order such as upon examination they deem necessary, to the extent of the sum allocated to them, examine and sign the bills furnished, if correct, and forward them to the Council for payment.

Library Committee.

The library is also under the care and superintendence of a Standing Committee, who are intrusted with the selection of the books and the management of the finances of that department. They determine what books may or may not be lent to the members, and under what circumstances, and for what purposes, valuable scientific works may be so lent. This Committee meet once a fortnight, and is composed of gentlemen engaged in literary and scientific pursuits. The mode in which books are purchased is this, the bookseller sends in a list of the new works, together with the works themselves; the Committee examines and orders them, and also such in the recommendation-book as they consider should be purchased, and forwards this to the Council, who make the necessary order. The allocation for the purchase of books, binding, and contingencies, is £550 a year; the whole expense of the department is about £950. Messrs. Hodges and Smith are the booksellers. They were chosen after public competition, and allow a liberal discount on the purchases. Tenders were called for by public advertisement, and they were selected accordingly.

Expenses of Library.

The rooms formerly occupied by the Natural History Museum are nearly all now available for the library; but the books cannot be moved into them until the shelving is complete. The Committee have expended £200 in shelving, but five rooms are still unshelved. Until these fittings are put up, the books, which have accumulated to a large extent, and are stored in the roof and piled on the floors, cannot be accessible either to the members or the public. These rooms will be sufficient for the present collection, and will leave space for accumulations for some years. A considerable number of the books in the library are donations or exchanges for the Journal of the Society, which is sent to every scientific society in Europe and America, and these societies send their transactions in return. About 250 copies of the journal go out quarterly to the various learned and scientific societies. I think the library a most admirable and most useful part of the institution.

Evening opening.

The experiment of opening the library in the evening, three times a week, has been very successful. The funds will not allow the opening of it every night, although the Society is very anxious to extend this privilege to the public. The average attendance of readers, exclusive of members, is stated in the last report to be forty-nine in the day, and nine in the evening; but at present double that number attend in the evening.

Admission.

The privilege of admission to the library is exercised most freely. Each member is furnished from time to time with forms, to certify that the person to whom he gives the privilege is a proper person; and the members are so numerous, that the admission may be regarded as free. Each person gets a card to admit for three months, and this can be renewed when the term expires. The forms required for admission only amount to a guarantee for respectability. The principal requirements of the library are funds to provide for the expenses of light and attendance in the evenings, and additional funds for the purchase and binding of books. All books of a high literary or scientific character are purchased. The books in the library are all books of general literature, and books relating to the arts and sciences. Religious, medical, and legal works, and works of imagination, are excluded. All the leading magazines are taken in, but no newspapers except the literary ones—the *Saturday Review*, the *Athenæum*, and *Literary Gazette*.

Other Libraries.

The other libraries in Dublin are—Trinity College Library, which is limited to the purposes of the University, and only open to graduates; the Dublin Library, open only to subscribers of £1 a year; it is a struggling institution, and is chiefly valued for its news-room. Marsh's or Stillingfleet's Library is confined to books of great antiquity. Then there is the Queen's Inns Library, for members of the legal profession. But this is the only library upon which the public can rely for access to books of character in current literature and science. I am perfectly satisfied that the public derive very great benefit from the existence of this library.

Natural History Committee.

The Committee of Natural History has the control of the Museum, and direct the purchase of specimens, &c. The Director is in immediate charge of the Museum. He makes his suggestions to the Committee, which makes its reports to the Council upon the state and progress of the department. The Director acts under the immediate superintendence of the Committee, the Committee being under the superintendence of the Council. This rule applies to all the departments. The officers of the different departments act under the immediate orders of their respective Committees, who are themselves under the direction of the Council.

Museum.

The Natural History Museum is still unfinished, and is not available as a means of public instruction. There is no flooring in the under part, nor any means provided for heating it. An apparatus has been provided for heating the upper part. There is a deficiency of cases for setting up the specimens. There are no less than 2,500 bird-skins remaining unstuffed; a large number of specimens of fish are lying in crocks. A portion of the minerals has been arranged and named, but many more cases are required to complete this arrangement. During the last ten years not more than £300 has been expended in the purchase of specimens, while the value of the donations made during the same time has been many times that amount. Among these were the unique collection of Arctic birds and fossils from Sir Leopold M'Clintock; a most interesting collection of Bornean birds, from Sir W. Jeffcott; a collection of shells from Jamaica, by Professor Adams; and a collection of native birds, by Mr. Montgomery. I consider this a most valuable collection in mineralogy, geology, and the different departments of zoology. No provision has been made for the arrangement of the ethnological collection; and, in fact, the whole collection is lying useless as a means of instruction, with the exception of part of the minerals.

Botany Committee.

Collection.

The Committee of Botany and Botanic Garden has the general superintendence and the control of the Curator in the performance of his duties. The collection of plants has been almost altogether made up of donations and exchanges. The teaching afforded by this department is a very important part of the Society's operations. The Garden affords the Professor the means of teaching the science here and at the Garden; while specimens are given to other Professors, to those of the College of Surgeons, the Carmichael School of Medicine, and the Queen's College, Galway, for the illustration of their lectures. Specimens are also furnished to the School of Art, for educational purposes.

Suggestions.

The funds for the general support and maintenance of this department are quite inadequate. The fuel alone costs £150 a year, and that will increase as the buildings increase. The Palm-house has been built by a special grant of £2,500, but there is no fund for supplying it with fuel, nor for additional attendants. The Professor of Botany is not at present attached to this Society. The Curator may be regarded as in care of the Garden. He resides there, overlooks the workmen, and is responsible that the work is properly done.

Professor.

I do not think the Garden would be of the least use without a Professor of Botany. The public would have no other opportunity of learning the character of the plants. They could not get that knowledge without the teaching of a Professor. In fact, I am of opinion that the public lectures are most valuable and important, and that without them the Garden would be comparatively useless as a means of instruction. The Professor of Botany gives twelve lectures here, twelve at the Garden, and twenty at the Museum of Irish Industry. Those delivered in the Garden and Lecture Theatre in 1860 were attended by an average of seventy persons.

Wants. There is one very important want at the Garden, namely, the erection of a building for a Museum of Economic Botany, such as those at Kew and Edinburgh. This is one of the most valuable establishments that could be connected with the Garden. There is the nucleus of a very good collection in the small iron house at present allocated to it. But I am afraid it is undergoing deterioration in consequence of the house being quite unsuited for its preservation.

Fine Arts. The Fine Arts Committee has the control of the picture and statue galleries, and the general supervision of the school, without, however, any interference in the instruction given. It meets monthly, receives reports of the state of the school attendance and fees from the master, and it draws up the reports that are to be sent to the Department of Science and Art. It acts as the deputy of the Council, who have the same powers as the Committee of any local school. The instruction given is laid down by the Department of Science and Art. I have heard complaints outside of the insufficiency of the instruction given in the school. I think a great improvement would be effected in the teaching by having a master attached to each department of drawing, as it was when under the control of the Society. At present the whole work falls upon two masters, whose duty it is to teach all the branches of the Fine Arts; and even if it were possible for them to be proficient in all these branches, the small portion of time that can be given to each pupil can never secure successful teaching. The Society would gladly see the original order of things, which was found to work with great success, restored.

Manufactures. The Committee of Manufactures has the arrangement of the occasional exhibitions of manufactures and works of art, and the superintendence of the Agricultural Museum. The Exhibition of Manufactures has been held every three years since 1830. It has not been held since the Great Exhibition of 1853, but I believe it is intended to resume these exhibitions, or others somewhat similar, after a little time; £150 is the sum placed at the disposal of this Committee annually as a guarantee fund for exhibitions. Last year there was an accumulation of £450, which was expended upon an Exhibition of Fine and Ornamental Arts. It started with a guarantee, by private contributors, of £5,000, to guard the Society against loss; in a short time the guarantee fund reached £10,000. The exhibition was a great success. Upwards of £8,000 was received, and out of this were paid the cost of constructing the galleries in the Agricultural Hall, and all other expenses connected with the exhibition.

Natural Philosophy. The Natural Philosophy Committee may be said to be in abeyance since the Professor became detached from the Society. Its duty is to see that care is taken of the extensive physical apparatus belonging to the Society. This apparatus is used at the lectures in Stephen's-green Museum as well as here. Some protecting cases are greatly required in this department.

Evening Meetings. The Committee of Evening Meetings has the management of the scientific meetings held during the Session for the reading and discussion of scientific papers. It receives proposals from persons desirous of reading; examines the papers proposed to be read; gives or withholds permission, as it considers best. Selections of the papers are printed in the quarterly Journal of the Society. Persons who are not members are invited to communicate papers. The average attendance is about 200. The discussions are conducted with great vigour and spirit, and many interesting and important papers are read during the session.

(Dr. Steele here gives a detail of his duties, for which see Appendix, page 121.)

Change in Council.

I am aware that there is a sum voted by Parliament to this Society, and that further sums are required for placing the various departments in a proper state of efficiency. I am also aware that the Council have recommended that there shall be delegated to the Council the general management of the Society, and the exclusive control over its paid officers and servants. I decline to give any opinion that it would be to the advantage of this body that there should be some delegated body within it having the control of the officers and servants, and the power of appointing and dismissing them. I know that for the most part that is the constitution of the Council, or directing body, in most public bodies. That is the case in the Colleges of Surgeons here and in London—where the central Council is supreme during the year of its office. It is the case, I believe, in the Royal Agricultural Improvement Society of Ireland since the obtainment of its charter. In all railway companies also the Directors are supreme for the year, and have the appointment and dismissal of all the officers and servants. I decline to express any opinion as to the expediency or otherwise of altering the present constitution of this Society. I believe that it is to the advantage of other large Societies, that their affairs are administered by Councils elected annually and having paramount authority for their year of office. It is the opinion of some of the members that such a change in the constitution of the Society would render desirable some alteration, so as to cause the action of the Society at large in relation to the Council to be more immediate and direct, and render the Council, to a still larger extent than at present, the exponent of the opinion of the body at large. If the Society at large gives up the power of overruling the decisions of the Council, and the Society be at the same time more fully represented at the Council, the only difference between the two constitutions will be that one mode of control will be substituted for another;—instead of controlling the Council through its own direct action, the Society will exercise its control through a delegated body. At present the Council is obliged to go to the Society for the sanction of its acts in all cases except those of ordinary routine. The Council is not provided for at all in the charter—it is elected under a by-law. I do not think the constitution of the Council with these full powers would affect the popularity of the Society. I have no doubt it would be distasteful to a good many members, but I believe many would be in favour of this constitution. The Royal Agricultural Improvement Society is a popular body, and upon getting their charter they constituted within themselves a supreme Council, and this did not interfere with their popularity. According to the proposed change the power of the Council would be increased, and the position of member of Council would be a source of greater distinction and importance. I think a corresponding increased attention would be paid to the election of the Council, and that persons of high distinction and great eminence would desire to be elected to the Council.

Amalgamation.

I am slightly acquainted with the collections in the Royal Dublin Society and generally with those of the Museum of Irish Industry. To some extent they are duplicate collections. They have a library at Stephen's-green for use of the Professors, and we give the Professors the free use of our library; they use at Stephen's-green our collections and our apparatus; we send there quantities of specimens of various kinds to illustrate the lectures. The teaching is the same in both places, both as regards the matter and the persons who teach—it is simply an alternation between the two places. There is not a doubt that it would be more convenient to have the two collections grouped, and the instruction given in the one place. I do not think there is a want in Dublin for two institutions of the same kind. By uniting the two a considerable saving would be effected as the one staff would suffice. Everything that they do at Stephen's-green in the way of instruction we can do, and I am not sure that we could not do it better if the same means were placed at our disposal that is afforded to them, I have no hesitation in saying that the consolidation, if determined upon, should take place in the Royal Dublin Society, in consequence of its established reputation, and from its having such widespread roots throughout the country. I am aware that there are at Stephen's-green collections illustrative of the manufacture of porcelain, glass, iron, and various clays, which are of no practical value to this country, because they are manufactures not carried on here. I do not see any great use in these collections as instruments of Irish industrial education. Supposing what is not useful is omitted, I think we have the means of accommodation for everything that is in Stephen's-green Museum that is not a duplicate of our collection in Mineralogy and Geology.

Lecture system.

Assuming that there are special reasons for Government aid to be given for teaching Agriculture and Botany, do you consider there is sufficient justification for teaching Physics, Chemistry, and Zoology out of the public funds?—I consider the teaching of these subjects an agent of civilization generally. These lectures are largely attended by ladies and young persons generally, who derive much admirable scientific information from them, and whose minds are directed to scientific pursuits in afterlife in consequence of the lectures delivered here.

Are the persons who receive instruction from these lectures the class for whose education provision is made by the State in other parts of the kingdom; and if not, what special reason exists for it here?—The persons who attend these lectures are generally of the middle class; and as the State provides for the poorer classes an education which they could not otherwise obtain, and University education for the upper classes, I think the State should provide for the middle classes also an education that they could not otherwise obtain.

The object of the Science and Art Department is to afford assistance to the *industrial classes*, in procuring instruction in Science, and to leave to the middle and upper classes their own education. Why should a provision be made for the instruction of the middle and upper classes here that is not made in other parts of the kingdom?—I think the State should provide the means of instruction which could not be attained from private sources. Of the great utility of the lectures delivered here, I can speak in my own person, The first direction of my mind to scientific studies was due to the lectures which I attended in this house when young, and at that time I could not get elsewhere the instruction which I obtained here.

If the aid at present given by the State to this system of instruction were withdrawn, would there not be then sufficient inducement to private parties to supply the want of a scientific education to the middle and upper classes who could afford to pay for it?—I do not think there would be.

Is it possible that a self-supporting system of scientific education can ever be established so long as Professors are paid by the State for affording this scientific instruction?—I think the system of teaching by these free public lectures may go hand in hand with a system of private teaching. The first tastes and stimulus are given by the lectures, and the subsequent closer investigation of the subject may be pursued under the system of Science Schools. Each would act as an aid to the other, the taste for the pursuit baving been derived from public lectures, which people are led to attend because they are free and open.

Under the Science Minute, public aid is given to the scientific instruction of the industrial classes by payments on results. Is not that a more effectual system for securing to these classes a scientific education than the system of teaching by Professors without regard to results?—I think one system is ancillary to the other; but the system of teaching by certified teachers and payments on results does not supply the place of professorial teaching. To learn Chemistry, for example, or Physics, the student must see the experiments performed before his eyes; and this can only be done by a highly accomplished teacher, such as the Professors under the present system are.

Under the Science Minute, aid is given to the scientific education of the industrial classes:—1st. By payments on results to certificated teachers; 2nd. By grants towards purchase of apparatus; 3rd. By public examinations, in which Queen's medals and honor certificates are awarded to all successful candidates, whether taught by a certificated teacher or not. The certificated teacher receives £1 for every student of the industrial classes who has received forty lessons from him in the subject, in which the teacher is certified, and passes in such subject, £2 for every one who is honourably mentioned, and £3, £4, or £5 for every one who takes a Queen's prize, according to its grade. Is not that a more effectual system than the present one for securing a scientific education to the industrial classes?—I think it might be desirable to combine both. I think it would not be judicious to abolish the system of public lectures, because it is by these that the public mind is drawn to the subject. The public derive great benefit from these lectures; they are looked upon as a sort of institution; and the public at large would greatly regret their abolition.

Lord Justice.—If this instruction by public lectures was not afforded, would or could the persons who benefit by it acquire this scientific knowledge elsewhere?—I do not think they would or could.

Supposing the system of lectures continued, would it not be advisable to charge a small fee for attendance as a test of the value attached to the lectures?—I think the least possible difficulty should be thrown in the way of communicating knowledge; and there is one thing that should be taken into account, that the desire for scientific instruction must be amongst us fostered and encouraged. The difference between the attendance at the free lectures and at those for which a fee is paid shows what the result of putting on a charge would be. When the charge of 2*s*. 6*d*. or 3*s*. 6*d*. is made for the course, the attendance is sometimes very few, and when this little fee is taken off the room is crowded; the fee in such case acts as an obstruction to the diffusion of knowledge.

Does not that show that a craving for scientific knowledge has not been produced by the lecture system.—I do not think it does. A craving has been produced, but not to the extent of inducing the public, who have been accustomed to have these public lectures without charge, to pay for the acquisition of scientific knowledge.

Would not the introduction of the Science Schools supply the want sought to be supplied by the lecture system?—I think one might be an aid to the other, but I do not think that the Science Schools could supply the instruction afforded by the system carried on so long in this city.

Why is it that Dublin should be an exception to the various towns in England in this respect?—The public here have been used to these lectures; they like them; and they would greatly disapprove of their being stopped. One of the functions of the Society is to send, through the Committee of Lectures, lecturers down to the different towns on certain conditions. These lectures are greatly sought after, and there are always more applications than can be complied with.

If it was determined to continue public assistance to this system of teaching by public lectures in Dublin, would there be any reason for refusing such assistance to other places upon their applying for it?—Unless that *we* have had it, and they have not. Besides, this is a metropolis with a large population, and its institutions should be of a metropolitan character. The system is pursued in London, where free public lectures on scientific subjects are delivered in the Royal Institution and other places. I know I derived great benefit myself from our public lectures; and I would be very sorry to see them abolished.

Would the utility of the Museum of Natural History and Botanic Garden be interfered with by the discontinuance of this system of teaching?—Unless there be a system of teaching such as to induce the public to visit the Museum for the purpose of acquiring knowledge, and to place them in the position of being able to acquire that knowledge, I do not see the use of these collections. They cannot be understood or appreciated unless in connexion with a teaching such as is derived from the lecture system so long established. I am decidedly of opinion that it would be more advisable to maintain a staff of efficient public lecturers at the expense of the Museum and Botanic Garden, than to support those departments more liberally but without the staff of professors, even were Science Schools established.

Are you aware that the Science Schools under the Minute of Council have already been successfully introduced into this country?—I am not acquainted with the working of the system of the Science Schools.

3RD OCTOBER, 1862.

The Rev. SAMUEL HAUGHTON examined.

Natural History Museum.

The minerals.

Contents.

I am a Fellow of Trinity College, and Professor of Geology in the University of Dublin. I have taken an active interest in matters connected with science in Dublin, and particularly in all matters connected with science in this Society. I have taken some trouble to classify and arrange the mineral collection belonging to this Society. I found it in a neglected condition; but I succeeded in arranging the minerals so as to cause them to be better known to the members of the Society; and that better knowledge has revived an interest in mineralogy that formerly existed. This collection is of great value. It consists of three well-known collections: the Leskean, purchased by the Irish Parliament; the general collection, made under Sir C. Giesecke; and the valuable collection of the late Baron Joy. There is a fine collection of Irish Carboniferous fossils, collected by Sir Richard Griffith; but the Geological collection is defective in specimens of the Silurian and English rocks. The Geological collection has been chiefly made up from contributions, and therefore labours under a defect which it would not have if purchased in a systematic manner. The arrangement of the minerals is by no means complete. When I was in Copenhagen, where there is a Greenland collection similar to ours, I was spoken to by some gentlemen who heard of our collection, and were very anxious to know if they could see Giesecke's Greenland specimens on coming over. I was ashamed to say that they were buddled away in drawers, where they could not be referred to. We have the means of making a collection, which, although deficient in some respects, would be only inferior to that in the British Museum. The Geological collection in Stephen's-green is superior to ours, except in the Carboniferous formation; and it would be a great public benefit to bring the minerals and fossils of both institutions together. I am of opinion that collections made by Geological Surveys ought not to be kept together, as Geological Survey collections, but should be sent to a public museum. If it be desirable to keep any local group together for a specific purpose, it might be done; but all local collections should be united into one general museum. It is for the interests of science and illustrative of the history of the earth's crust, that all the fossils should be brought together, and arranged according to their zoological affinities, without reference to where they came from. We want a museum in Dublin, with a large general collection for popular purposes. There is a clear line of distinction between a collection suitable for a University and one for the general public, and that is a distinction well understood in foreign countries. The collections in the Dublin Society and the Museum of Industry are similar, but supplementary; and a very good collection could be made out of both. Our collection of minerals is far finer, but they have a very fine collection of fossils. Their Silurian fossils and Portlock collection, with our Carboniferous, would make a very complete collection, and the duplicates might be disposed of to other museums. If this consolidation takes place, the transfer should be to the Dublin Society, which is known throughout the country, while the Museum of Irish Industry is comparatively unknown. I could not hesitate to express my opinion that the Dublin Society is the proper place for a public collection. A great impulse would be given to the evening meetings, if we were in a position to spend more money in the publication of the journal in which the papers read are printed. Many papers are not sent to us, because it is well known that we are limited in funds for publication. The papers not given to us on that account are sent to other societies; and many of the papers read in London societies come from Ireland. There is no middle class examination in this country, such as there is in England, in connexion with the University of Dublin; but in the year 1857 the Dublin Society established a system of examination in the elements of education necessary for persons entering public or commercial offices, and the system has been attended with success. The certificates given to the successful candidates in these examinations are now greatly prized, because they are a proof of requisite competency for certain situations, and are the best recommendations for employment. The growing desire to obtain these certificates is evinced by the gradual increase in the number of candidates. In 1857 there were 22 candidates; 1858, 28; 1859, 34; 1860, 37; 1861, 38; 1862, 65. These certificates are recognised by several banks, railway companies, and commercial houses, and in fact are passports to employment; they have even now come to be recognised by the public departments, and this year we were allowed to nominate six of the pupils who had obtained certificates to compete for appointments in the Census Office. But the examinations are only held in Dublin, and it is strongly felt that they should be held in the country also. At present a candidate from the country has to undergo the expense of travelling to town. Sometimes the necessary expenses are paid by their friends; but complaints have been made of the hardship this inflicts, and we have been pressed to hold examinations in the country as well as in Dublin. What I would suggest is,

Public Museum.

Arrangement.

Popular Museum.

Consolidation.

Evening meetings.

Examination for certificates.

Royal Irish Academy.

that these examinations should be held in connexion with the examinations held in towns after the lectures delivered each year under the arrangements made with the Committee of Lectures. It is a hardship that there is no way of obtaining these certificates but by coming up to town; and this could be remedied by having the examinations put in connexion with the local lectures and examinations. The examinations after these lectures are prized by the country; but they are of very inconsiderable value when compared with these, success in which is a sure road to profitable employment. The subjects of this examination are reading, writing from dictation, arithmetic, and the elements of history or algebra. Students have come from Limerick, Drogheda, and Londonderry, to compete for these certificates, so highly valued are they, and so well recognised. We are satisfied that these examinations have done a great deal of good, and that we should make some arrangements for holding them in the country; and I believe that the adoption of this course would increase the popularity of the Institution. I take an active interest in the proceedings of the Royal Irish Academy. It was established for the cultivation of antiquarian knowledge, polite literature, and science. There is an antagonism between science and antiquities in the Academy, as each department endeavours to advance its own objects, so that the progress of the Society is much interfered with. In the antiquity department the money is spent on purchases for the museum, in the scientific it is spent on printing. This has created an antagonism, arising from the activity with which each branch is cultivated, that has been attended with unfortunate results. The Academy is the only Society in Dublin that publishes very expensive scientific papers; but they are in want of funds, and persons who have papers requiring a large amount of illustration, must send them elsewhere. The total income of the Royal Irish Academy is under £1,000—£500 from Government, and £500 from the Cunningham Fund and subscriptions. The Academy is, on a small scale, the Royal Society and the Antiquarian Society combined. I think both parties would be glad to have an alteration in the charter, not for the purpose of separating, but for the purpose of dividing the grant, and making two distinct sections in the same Academy. This would stop that antagonism that is at present so disastrous.

ALEXANDER CARTE, Esq., M.D., examined.

Natural History Museum.

Contents.

Condition of specimens.

I am Director of the Natural History Museum of the Dublin Society. That museum aims at being a complete Museum of Natural History. The collection consists of the usual objects of interest in Natural History, and is a very valuable and extensive one. It contains the Vertebrata, including Mammalia, Birds, Reptiles, Amphibia, and Fishes—the Mollusca of various kinds—the Annulosa, including insects of various kinds, (such as Lepidoptera, Colesptera, Hymenoptera, and Hemiptera, &c.) Crustacea, and Echinodermata, &c., &c.; in fact more or less of all the objects of Natural History. It possesses, in addition, the Geological and Mineralogical collections. The collection is not at present placed out for exhibition, in consequence of want of funds to purchase the necessary cases. The specimens are now lying in boxes, drawers, and bottles out of the public view. The new building has ample room for placing out the present collection, but a collection of the kind is more or less a growing one—there are gaps in it which are to be filled up as opportunity offers. In consequence of the present state of the Museum, it is not available for public instruction. The collection has been chiefly formed by donations from private individuals. During the eleven years that I am connected with it, there has been expended in the purchase of specimens only, £373; while a very large addition indeed has been made by donations. Of Birds alone, 2,500 skins have been presented, while there were not more than 150 purchases made in that class during the same time. This applies to the other classes, and in the same proportion. The collection is a most valuable and extensive one—it contains many objects of the highest interest. The Arctic Collection of Captain M'Clintock alone is most valuable, and one which it would be almost impossible to get again. There are Ammonites from Prince Patrick's Land which are most important and interesting to science. There are very few of the Mammals set up in the Museum for want of protecting cases. Without the proper cases the eyes are liable to be picked out, as they have been. These are made of glass, and cost generally half-a-guinea a pair. They must also be protected from dust and moths, and without this protection I could not put them out. The same may be said with regard to the birds. I have none of the new birds set up—I have no cases to put them in, and they would be destroyed without them—in fact if moths were once permitted to multiply, one season would be sufficient to cause destruction to an entire Museum. As I get the birds I put them in paper; marking the name of the donor, and of the specimen, and stow them away in drawers. The Butterflies likewise are away in boxes—they cannot be exhibited for a similar reason. Part of the mineralogical collection has been arranged and exhibited through the kind exertions made by Professor Haughton. I do not consider that part of the collection as under my charge. There is a Professor of Mineralogy attached to the Society, and I have as much as, or more than I can do to faithfully discharge my duties in connexion with the Natural History portion of the Museum. The specimens placed in boxes, if looked after, are not more liable to deterioration than if set up in cases; but preparations intended to be preserved in spirits are liable to decay. The circumstance of not being able to exhibit the different objects, acts as a discouragement to gentlemen who would otherwise be disposed to make presents to the Society. Some of Captain M'Clintock's collection is exhibited. I would urge the necessity of appointing some additional assistance both in making the necessary preparations and arrangements, and in attending the Museum. I have only one boy to assist me—he is a stuffer, whom I taught myself. He and I are the only persons in charge of the whole department. There is but one porter, who is by no means adequate to the attendance required for the two large rooms. I know the Natural History collection at the Museum of Irish Industry. The animals it contains, so far as I am aware, are those which were obtained during the Portlock Survey. It consists of Birds, Fish, Shells, Crustacæ, &c., &c., similar to our Native collection, and it would, perhaps, be desirable to place them all together. I do not think that the Mineralogical and Geological collections of the two Museums are in duplicate, unless, which I am not aware of, Sir Richard Griffith may have presented a collection to the Museum of Irish Industry similar to that formerly given by him to this Society. The Geological collection at Stephen's-green has been made by the present Geological Survey, whose labours still continue. I should think we do not possess many (if any) duplicates of that collection. I have nothing more to add. Mr. Andrews has been appointed by the Natural History Committee to represent their views, and, I understand, he has drawn up a report which he is prepared to submit.

Want of assistance.

Mr. Andrews read a report representing the views of the Natural History Committee in respect of the Museum.

He then said:—I have been for many years a member of the Natural History Committee, and was therefore requested to attend the Commission upon the part of the Committee, and submit a report of what had been done in the Museum, and what remained to be done for the object for which it was established—public instruction. The objects in the Museum given by donation are greatly in excess of those obtained by purchase. There are the large collections presented by Sir Leopold M'Clintock, and by Sir William Jefcott, the presentations from the India House, and other most valuable contributions. I should say that the donations are more than twenty to one of the purchases. The whole expenditure upon the Museum is £650 a-year, of which last year £195 was for specimens, preparations, carriage, &c. I do not know any thing of the collection in the Museum of Irish Industry. I think it highly desirable to concentrate in one building collections of Natural History, Geology, and Mineralogy. One suite of reference would be very desirable for the general public. The magnificent Library of the Society, and its collections, would not alone be valuable to the student but to those more advanced in science.

Mode of collection.

Henry Connor White, esq., examined.

Accounts and audit.

I am Registrar and Housekeeper to the Royal Dublin Society. My duty as Registrar is to keep the accounts of the Society in its collective and departmental capacity. I keep separate accounts of each department or committee, as well as the general accounts of the whole body. I have to make a monthly return to the Council of Science and Art, as well as to the Board of Audit; a duplicate account is prepared monthly, one for each of these departments. The accounts go before the Committee of Finance, which is a sub-committee of the Council. There is a particular allocation of money to each department of the Society; and it is my duty to see that that allocation is not exceeded, and to examine and keep the accounts within due limits. Every bill for payment must come to me from its own committee, signed by the proper officer and the Chairman. It passes from me to the Finance Committee; it is examined by the Finance Committee with the greatest care and minuteness, and if passed by them, it is sent on to the Council, who authorize the payment, if they find all to be correct. The sum voted by Parliament is a lump sum. A certain fixed sum is appropriated to each department by the Society, and authorized by Parliament. The appropriation of the grant is a fixed appropriation. It is nearly the same every year. The committee is limited to the sum appropriated. If any thing over the appropriation is necessary, the committee must go to the Council and Society for aid from the Reserve Fund, and for authority to expend it. At the end of the year I furnish a return of the whole receipts and expenditure; it is again examined, declared, and verified before a Magistrate, and then sent over to the authorities in London.

[The various account-books of the Society are produced, and examined by Sir Charles Trevelyan, who goes through several items with Mr. White. Sir Charles also reads the paragraph from Captain Donnelly's Report of the 11th December, 1861, relative to miscellaneous receipts having been placed only to the credit of the Society's funds. Sir

Charles expresses the opinion that where the supporting fund is a joint one—part from the Government and part from the Society—the incidental result of the application of these two sums, and consequently the "miscellaneous receipts" should not go to the one or the other contributor, except in the proportion due to each.]

[Mr. White observes in reply, with reference to the paragraph alluded to, that while he has duly applied and accounted for every sum which he received, he could not do so in regard to the special item of "aid" to the School of Art, inasmuch as it never passed through his hands, having been paid direct by the department to the Masters, &c., without his intervention or knowledge of the amount.]

Sir C. TREVELYAN.—Would there be any objection to furnish, in addition to the annual statement of accounts, a separate estimate, showing the proposed appropriation of the entire funds, including the miscellaneous receipts?

Mr. *White.*—As the miscellaneous receipts are a contingent fund, I do not see how that could be done. The reserve fund is composed of members' subscriptions and other sources of income, which are made use of to aid the Parliamentary grant. It could not be appropriated without the direct authority of the Council and the Society, while it would be difficult to form an estimate of the contingent demands which it might have to meet.

Sir C. TREVELYAN.—Inasmuch as the miscellaneous receipts are in a large proportion the indirect result of the Parliamentary grant, is it not right that the consent of the Committee of Council should be extended to their expenditure as well as to the expenditure of the original grant?

Mr. *White.*—You cannot anticipate a contingent fund.

Sir C. TREVELYAN.—If the consent of the Government did not extend to the miscellaneous receipts, might not an expenditure take place upon objects not authorized by the Government?

Mr. *White.*—Yes; but not upon useless or improper objects not warranted by the Charter—as no expenditure can possibly take place without the previous sanction and authority of the Council and Society, and subject to its being subsequently accounted for in the usual way both here and in London.

Sir C. TREVELYAN.—Would there be any objection to this; if the Society contemplated the expenditure of any part of the miscellaneous fund on any thing not included in any of the appropriations of the Parliamentary grant, that they should obtain the previous sanction of the Committee of Council to that expenditure?

Mr. *White.*—That is a question which I do not feel, in my subordinate capacity, at all in a position to answer. The accounts are sent both to the Committee of Council and to the Audit Board—one set for the Audit Board has the bills and vouchers attached. The entire expenditure of the Society is included in the accounts rendered to the Commissioners of Audit, and accounted for to them. All accounts passed by the Council are paid by drafts upon the Bank of Ireland, duly signed by an Honorary Officer and counter-signed by the Assistant-Secretary and the Registrar: and at the end of each month I get from the Accountant-General a certificate of the amount in the bank to the credit of the Society, and that is sent each month, with the bills and detailed accounts, to the Audit Commissioners. Besides the duties connected with the accounts, I have others of great importance and responsibility. I have the custody of the buildings, and the large amount of valuable property contained in them, the charge and superintendence of the servants, the providing all suitable requisites for the establishment and its several departments, seeing that every thing is safe and in proper preservation, and that no danger or risk will arise to the premises and the property during the cattle shows and other exhibitions, and more especially during the various night meetings in the house, theatre, schools, laboratory, &c., when from the number of lights and fires necessarily made use of the utmost vigilance and attention is required.

Sir C. Trevelyan said that every thing in Mr. White's accounts seemed most satisfactory, and gave evidence of a faithful and exact administration of the Society's funds.

Simon Foot, esq., examined.

Botanic Gardens.

I am Chairman of the Botany Committee of the Royal Dublin Society. The late Lord Oriel had the ground of the Botanic Gardens purchased for the Society, and the purchase money was paid by a grant from the Irish Parliament. The area of the Gardens is about 43 acres.

Arrangement.

There is in the Gardens a collection of plants, and an arrangement for teaching the science of Botany. This is, I believe, the first garden in these countries that was laid out according to the natural system, as distinguished from the Linnæan system. The natural system consists in this—that the plants are arranged according to their affinities. There is in the Gardens a collection of plants of the British Islands, and there is a medical garden, containing the plants used in medicine; this latter is designed for the benefit of students connected with the medical profession.

Wants.

We have already suggested our wants in respect of these Gardens to be—the construction of a palm house, of a building for a Botanical museum, and the completion of a range of conservatories. The estimated cost of the palm house was £5,000, but Parliament would only grant £2,500; and hence, we have got a house that is unsightly, although sufficient in size. The accommodation is sufficient, but it was impossible to make a handsome structure for the money. The building is not quite completed; but even if it were, the plants could not be moved into it at this time of year.

Arboretum.

I would suggest that it would be very desirable to extend the Arboretum. There is a piece of ground available for that purpose attached to the Gardens; it was a piece that was taken by the Society for the purpose of preventing the Gardens from being almost entirely enclosed by the Cemetery. It would cost a considerable sum to make it an Arboretum and keep it in order, and I will not therefore press it.

Botanical Museum.

We want, very badly, a Botanical museum, similar to those at Kew and Edinburgh. The small iron house in which the collection is placed is a great object of attraction to the persons who visit the gardens, but it is not fit for the protection of the objects which it contains. Without a Botanical museum the means of instruction are not complete, and such a museum would add to the attraction of the Gardens. Unless a proper house is provided, the collection, in the present insufficient one, will be injured. The collection is an object of great attraction. The Professor of Botany is not our Professor now: not since the arrangement with the Department of Science and Art.

Lectures.

He gives a course of lectures here in the spring, and in the Gardens in summer. We have a lecture-room there, and a library for reference by the students who attend there. I consider it is of the greatest importance to have a Professor attached to the Gardens. I think the collection of plants would be comparatively unavailable for teaching unless there be at the same time the essential explanations of a Professor. The Professor is, of course, for teaching the *science*; the Curator affords, as far as possible, information to the general public; but there are a number of young people who attend the special lectures of the Professor, and who thus learn the subject intimately and accurately.

Opening on Sunday.

Conservatory.

Practical garden.

The opening of the Gardens on Sunday has been very successful. The visitors have been well conducted: no *intentional* damage has been done, nor damage of any kind, except the throwing down some potted plants in consequence of the narrowness of the passages in the Conservatories, and the unavoidable trampling of the grass, which, of course, involves some expense. There were upwards of 12,000 persons present one Sunday in September. We have strongly recommended the widening of the passages in the Conservatories, and have consulted the architect of the Board of Works upon the matter; but he has informed us that there is no possible plan for effecting this, except by doubling the houses, which would involve a very large expenditure. An arboretum is, in fact, a practical garden for teaching what trees can be grown with success and advantage. A great many trees have been added to the Garden, particularly among the pines. There have been many experiments made in the Gardens in reference to the growth of different kinds of grains, and the application of different kinds of manures. We have an Agricultural Department in which different kinds of seeds and plants are experimented upon, so that it is a practical as well as a scientific garden. We receive a great many donations from private parties—in fact, the only mode we have of getting seeds and plants is by donations and exchanges. The whole collection may be said to be formed of donations and exchanges. We very seldom buy a plant. The exchanges of seeds and cuttings are all effected through the instrumentality of the Curator.

John R. D'Olier, Esq., examined.

Fine Arts. Proceeding of Committee.

State of school.

I am Chairman of the Fine Arts Committee of the Royal Dublin Society. I have been a member of the Society since 1843. The Committee of Fine Arts meet once every month for the transaction of business. On these occasions the Head Master of the School of Art attends and states what is required—what examples he wants. He submits his accounts for such small things as he required during the past month, which are examined and audited by the Committee. He produces his books, and shows the number of students on the roll, and the amount of fees received. The Committee of Fine Arts is a body deputed by the Council, independent of the Society, to execute the necessary acts of management for the Council. The Council are regarded by the Department of Science and Art as the local managers—a local Committee for the purposes of the Act. We never interfere with the course of instruction pursued in the school—that is prescribed by the Science and Art Department. It is optional with the Committee to go through the schools from time to time, and see what is being done; but it does not interfere in any way with the instruction. I would not consider it within the province of the Committee to pass any opinion upon what is taught, or upon the mode of teaching it. One or two of the Committee make these periodical visits. The school, as at present constituted, is not in a satisfactory state; there is but one Head Master and an Assistant Master. That number of teachers is totally insufficient for the instruction which they are expected to afford. They are expected to teach Model Drawing, Architectural Drawing, General Preliminary Drawing, Water Colour Drawing, and Painting in Oil; and however efficient the Masters may be, the time at their disposal would not admit of their teaching all these efficiently to the number of pupils attending the schools. The number of students is about 400, including males and females; and these are divided into morning and evening classes. In fact the instructive force is insufficient for the number to be taught.

Sir C. TREVELYAN.—It is understood that other Art Schools are successfully conducted in which the proportion of masters to pupils is not greater than in this. Is there any reason, therefore, why this should be an exceptional case?

Former and present state of school.

Mr. *D'Olier*.—I can only say that up to 1849, when the school was under the exclusive management of the Society, the teaching was attended with most satisfactory results. £480 of the Parliamentary grant was then allocated to the Drawing Schools. We had then five masters, one for Architecture, one for Figure Drawing, one for Water Colour, one for Oil Painting, and one for Modelling. We have now only two for the four departments, while modelling has been altogether discontinued. That department has been closed altogether of late years, and the art of modelling is not now taught at all, as there is no special master for it. The attention of the Committee has been called to this great want by different Lords Lieutenant, in their annual inspections, especially by the Earl of Eglinton, who expressed a hope that this most useful department would be re-opened. Our Committee have frequently brought the matter under the notice of the Council. I think the teaching was more efficiently done under the former system. There was a smaller expenditure and the teaching embraced more objects. I believe that the course of instruction intended by the Science and Art Department is of the more elementary kind. We attempt to teach the higher art; but I believe that is not contemplated by the Science and Art Department. I think it is a general preliminary instruction which that department contemplates. Instruction in the higher art is given in our school as well as in the Royal Hibernian Academy. The Head Master teaches Oil Painting in our School. I think the object of the Science and Art Department would be more efficiently attained if so much were not attempted. No doubt a knowledge of general elementary drawing might be attained by not attempting so much, but that system would never produce proficiency in finished art. I do not think there is in Dublin a demand for two places of instruction in high art. I think one such place would be quite sufficient for all existing requirements. There is drawing from the living model in the Royal Hibernian Academy; we have a living model here also when the pupils subscribe to pay half for it. If it is to be understood that our instruction is to be purely elementary, I am sure that the Council of the Royal Dublin Society will do all in their power to make the school effective for the purpose. As to the out-door teaching, it is our opinion that we have not a sufficient number of Pupil-teachers. We have but one Pupil-teacher to every 200 out-door pupils. There are only two Pupil-teachers, and if we had more we should have a much larger number of out door pupils. It would be a very great advantage to have the Modelling School restored. The want of such a school is very much felt. Formerly it was carried on with great success, before our connexion with the Department of Science and Art—its results were most satisfactory—it produced a number of most eminent artists. I look upon this as a most important point. The modelling room is here, and all the appliances, but there is no teaching.

Modelling school.

Difference between former and present state.

High Art.

Out-door teaching.

Want of modelling school.

6TH OCTOBER, 1862.

Mr. DAVID MOORE examined.

Botanic Garden.

I am Curator of the Botanical Gardens at Glasnevin. I have been in that position these twenty-four years. I believe at the present time that this collection is next to that at Kew, and richer than any other in the three kingdoms except Kew. I think it is so in consequence of the extent which we are able to devote to carry out the classes, and to the arrangement of hardy herbaceous plants. I think that for the hardy plants, and the Arboretum, there are no gardens in the three kingdoms equal to ours. As to the palms and tropical plants, the collection is very good, and some of the palms are so large that they are outgrowing the present house. The principal deficiency has been supplied by the new palm-house; it was with respect to that I experienced the greatest deficiency in the Gardens. I require a kind of nursing-house for rearing the plants in their early stage; the house which we got built for that purpose is now devoted to another purpose. The shelves for the small plants in the palm-house have not yet been erected; there is some portion of the flooring still wanted; but if I had had the shelves, I would have had the plants in the house before now. They cannot now be removed in consequence of the lateness of the season. The want of a Botanical Museum is very much felt, and its establishment would be a great source of interest to the Gardens. The people at present take a great deal of interest in the very insufficient one that exists. I have seen the Botanical Museum at Kew, and I am of opinion that nothing in the garden exceeds the importance of the museum there in an educational point of view. I have collected a good many things interesting in economic botany, that I cannot at all arrange, and the roof of the house is such that anything valuable would be destroyed. I do not know that any regular estimate has been made of the cost of a suitable house, but I believe the Committee considered £1,000 would be necessary for this purpose. The following is a rough estimate of the additional cost of placing and keeping the Gardens in a perfectly satisfactory state.

Museum.

On the supposition that a new Botanical Museum will be built, and that the five acres of ground for which rent is paid at present will be added to the Arboretum, as well as other improvements hinted at, carried into effect, the following estimate is made, viz:—

	£	£
For Museum:—		
Salary of a properly qualified person to name the articles and attend to the department, &c.—salary per annum, . . .	60	
For fuel, purchase of articles occasionally, and other contingent expenses, ...	40	
	——	100
New Palm-house:—		
For fuel, labour, and other contingent expenses, ...		100
Arboretum and additional Flower Ground:—		
For keeping the five acres to be added to Arboretum, and for altering portions of the Gardens, so as to make them more attractive to the public, with additional flower beds, &c. Six labourers at £25 per annum each, ...		150
Experiments with Manures, and on Vegetable Physiology:—		
For purchase of manures, and labour on the experiments, &c.,		50
On General Contingencies, and purchase of Plants:—		
Contingencies, including tubs for palms, ...	100	
For purchase of plants, ...	50	
	——	150
Total, . . .		550

The addition of these small sums annually would afford the means of doing much more public good in this department,

Conservatories. I would particularly direct attention to the necessity of doubling the present conservatories. These conservatories were not constructed to afford accommodation to the large number of visitors who now throng the Gardens on Sundays, and were only calculated for a moderate amount of people. The conservatories were originally designed to be double their present size, but one-half only was built in consequence of the deficiency of funds. It was erected in 1847 by the Messrs. Turner, who constructed the conservatories at Kew. The cost of the one side was about £1,000 each of the two wings. It would be only necessary to take down the wall, and construct at that side the counterpart of that which has been erected. This additional accommodation is called for, both by the state of the collection, and to enable the public to see the different plants with advantage, and to pass freely through, without injury to the plants.

Arboretum. The rent paid to the Society for the five acres to which I have referred is £49 17*s*. This goes back to the general fund, and is so much in reduction of the apparent amount chargeable to the Garden. The present owner of this ground is anxious to give it up. His term will expire in nine years, when the Society will be obliged to take it off his hands. I proposed that it should be taken up from him now, and converted into an arboretum and additional flower ground, to make the Garden more attractive. The cost of the alteration and maintenance of these six acres in their new condition will be £150 a year. The arboretum is most valuable as a means of instruction, as it gives us means of testing and teaching to others the trees and plants which can be grown with the greatest success. Besides, since the opening up of Mexico and the Himalayas, a vast number of new hardy plants have come to us, for which there is not at present room in the Garden. This ground would be also important to the public as a park for their use, especially if four more acres were at same time added, which, with the five the Society are bound to take in nine years, are already enclosed with sufficiently good walls, excepting that side next the river Tolka. These four acres can be had on a perpetuity lease, at a yearly rent of £18 10*s*.

Experiments. I have estimated £50 a year additional for the purchase of manures, and for labour in connexion with experiments with manures and on vegetable physiology. The experiments to test the value of different kinds of manures, and to ascertain the best manner in which vegetables of various kinds can be grown, are of great interest and importance, and our operations in that department have been attended with very beneficial results. Frequently manure dealers bring me new manures, and ask me to test their value and utility in reference to various kinds of crops. I prepare a piece of ground with this new manure, and side by side with it a piece of ground with stable manure, or some other well known. I plant or sow them both with the same seed, and the crop produced by each gives us the means of ascertaining their comparative values. Upon these experiments I report to the Society, and the information thus obtained is diffused throughout the country. The increase of £550 a year to the expenditure upon the Garden would greatly increase its public utility, and would enable us to carry on the Garden efficiently, without troubling the Treasury for a number of years.

Professor of Botany. The Professor of Botany usually lectures at the Garden. In an educational point of view, I think these lectures most essential. His teaching is fraught with interest and importance. There are twelve

Lectures.

lectures given in the Garden each year. The persons who attend these are principally ladies and gentlemen, and clerks in public offices. The lectures are not attended by the working-classes nor by professional gardeners. The Professors of the College of Surgeons and the various medical colleges have liberty to attend at the Garden with their pupils, for the purpose of practical instruction; and since the competitive system was established, this privilege is very largely availed of. We furnish them with specimens for the illustration of their lectures. We furnish the specimens also for the lectures here and at Stephen's-green, to the School of Art when required, and latterly to the Queen's College at Galway. Specimens have not been required in the School of Art lately; but I understand that Mr. MacManus is about to resume the flower painting. The pupils of the School of Art have been in the habit of coming to the gardens to study from the living plants, though few samples were required to be sent to the School lately.

Pupils.

We take into the garden six pupils and two apprentices, for the purpose of teaching them practical botany and the management of plants; they go out after their term as foremen gardeners, or to take charge of large private gardens. The pupils remain two years; they are lodged in the garden, and partly educated. The two apprentices remain four years; one is taken in every two years. These so educated are now scattered all over the world. I continually receive communications from them from various quarters, and many of them have done extremely well. During the first year, while at the outside work, the pupils are paid 8*s*. a week, and the following year they get 9*s*., and are employed in the conservatories. We are never in want of pupils. There is no preference given in their selection. The applicants for the situation are numerous; we put the names down on a list, and when a vacancy is about to occur, I write to the first in order and acquaint him with the fact. We take care to ascertain before putting any name on the list that he is a fit and proper person, and that he has gone through a certain amount of the rough general gardening work.

Free opening.

I would respectfully beg to suggest that the gardens should be open to the public on every day of the week, free of charge, as at Kew and Edinburgh. We, perhaps, should require one close day, for shifting plants and for cleansing; but I would assimilate the admission to that at Kew; at present a charge of 6*d*. for grown persons, and 3*d*. for children, is made on Tuesdays and Thursdays. The total amount received during the year for these admissions is the paltry sum of £25, and for that there is an amount of vexatious disappointment to people who have mistaken the days, and who have brought their families at the expense of car-hire, that you can scarcely have a notion of. I have frequently seen instances of that kind, and the father of the family obliged to return with his wife and children without being able to see the gardens, after incurring what was to him considerable expense. There is no check upon the money received; it may be all handed over or it may not. The person at the gate is required to put a check into the box for every amount received; I compare the checks with the amount received, but that, after all, is uncertain. There are not two persons at the gate on these days. I would further suggest that the old dwelling-house should be removed; it is upwards of 200 years old, and is maintained at great expense. It is quite in the way of improvement; and, I believe, the late architect of the Board of Works some years ago reported that it ought to be taken down. The chief objection to the present house is that it stands in the way of improvement, and if it could be removed, and a small commodious house built for the Curator on a more suitable site, it would be a great matter.

Old dwelling-house.

Least I may in any way mislead the Commissioners, I further beg to observe that a portion of tho counterpart of the conservatories I have suggested to double is now occupied as seed and tool offices; a portion is also occupied as lodging rooms for the pupils and apprentices; in case, therefore, of the alteration being effected—*i.e.*, the houses doubled—some further expense will be necessary in providing offices and room for apprentices.

ROBERT COLLINS, esq., M.D., J.P., examined.

Agriculture Shows.

I have been Chairman of the Committee of Agriculture for the last twenty-two years, and have taken an active interest in all matters connected with the Agricultural Department of the Royal Dublin Society. The duties of the Committee are to make all the arrangements for the agricultural shows, and to report to the Council upon all the various matters connected with Agriculture that are referred to them. We hold two shows in each year, one in spring and one in winter. Our shows are confined to Dublin, and are conducted in the same way as those of the Highland Society and the Royal Agricultural Society of England. The shows of the Royal Agricultural Improvement Society of Ireland are held in various places throughout the country, from time to time, the expenses being borne partly by the Society and partly by the contributions of the locality in which the shows are held. The contribution from the grant to the Royal Dublin Society for the expense of our shows, is only £250 per annum, whereas we expend from £1,300 to £1,500 upon them, which is made up of this £250 and the amounts received for admission and exhibition fees. These shows may therefore be said to be conducted by voluntary contribution as well as the shows in England and Scotland, or those of the Royal Agricultural Improvement Society of Ireland. I think the proportion of the sum that we collect for this purpose by voluntary contribution is fully equal to that collected in England, taking into consideration the comparative wealth of both countries; and our contributions are not merely to be measured by the sums contributed to the shows. We have also expended out of our own funds between £4,000 and £5,000 in building an Agricultural Hall, for the accommodation of stock poultry and various articles sent for exhibition. 2,000 or £3,000 of this was raised by public subscription, and the rest was contributed by the Society. I think it is of very little consequence, one way or the other, whether this £250 is allocated from the Government fund or not, the sum is so insignificant. In fact there is not more than £180 of it available for medals and prizes; for the Curator is paid £50, and the other persons employed, about £20, for their services at the show.

I do not think it would be a desirable arrangement to have these shows placed under the management of the Royal Agricultural Improvement Society. I do not think it prevents the action of the Society in respect of these shows being considered as the result of voluntary contribution by its being known that a small portion of the expenses is defrayed by a public grant. If it were placed upon the broad basis of voluntary contribution, I do not think that the sum contributed in support of these shows would be increased. I think in proportion to our wealth our contributions are equal to those in England; while the shows themselves, as testified by the English and Scotch judges, are superior to those held there. A marvellous improvement has taken place in the shows of this Society, and it is impossible to estimate the amount of benefit they have conferred upon the country. When I first became a member of the Committee of Agriculture, about twenty-five years ago, there were but fifteen bulls exhibited at the Society's show; last year there were 205, all of a superior kind and many of the first class. The Royal Agricultural Improvement Society, holds its annual show in different places in different years successively. The novelty of the thing creates an excitement, and gives a stimulus; but, I think, upon trying the same place a second time, they find less exertion made. Our shows are held every year in Dublin, and each is an improvement upon the preceding. The railways afford every facility for bringing stock from the most distant points to a place where they are examined by the most competent judges, and placed side by side with the best animals of various kinds. The animals are purchased and transmitted with equal facility to other places; and thus Dublin forms the great centre for the examination, and distribution throughout the country afterwards, of the best class of animals and the most improved machinery. I look upon these shows as an essential element in the promotion of husbandry, which is one of the chief objects of the Society. They labour however under this defect, that the prizes are much too small—the amount given in prizes is greatly less than is awarded at similar exhibitions in England and Scotland.

The Agricultural Museum is the means of affording a very great **Museum.** amount of instruction to those engaged in the operations of husbandry: they see there specimens of the most improved implements, and thus becoming acquainted with their utility, they are induced to purchase them from the manufacturer. Indeed one of the most important advantages of the shows and the Museum is, that the farmer is familiarized with the value of these improved implements, without which the tillage of the country cannot now be carried on. The English manufacturers exhibit to as large an extent as our limits of accommodation will allow: their machinery and implements are extensively purchased, and are thus spread far and wide over the country. The Royal Agricultural Society have as much to do as they can accomplish: they find it very laborious work to carry on their shows, while we could not undertake to superintend the local shows, which it is their province to regulate. A very valuable addition has been made to the Show accommodation, by the erection of the Agricultural Hall; but more **Hall.** remains to be done, as Leinster Lawn can now no longer be used. There is a piece of ground adjoining the Society's premises which is in every way suitable for this purpose, a portion of which has been secured, and the Society has suggested the means of raising a considerable part of the purchase money by capitalizing the rent paid for the ground occupied by the National Gallery. The Professor of Agriculture and Chemistry is a very valuable public officer: he makes, from time to time, analyses of soils and manures; and his services in this way must be of great benefit to the interests of agriculture; but we want also a person to be attached to this department who is well acquainted with the diseases of cattle. There is at present a lamentable ignorance upon this subject throughout the whole United Kingdom. The diseases of horses are well understood; but no one knows anything of the diseases of cattle, and the loss sustained every year in consequence of that ignorance, is almost incalculable. I think a schoool of instruction in the diseases of cattle might be very properly attached to the Model Farm at Glasnevin, and I know of nothing by which so much good would be effected. The best means of placing the Agricultural Department in an efficient state is to complete the permanent accommodation; that would be a great assistance; it would relieve us from a large annual outlay; and thus enable us to give larger sums in prizes.

FREDERICK J. SIDNEY, LL.D., M.R.I.A., examined.

Sir C. TREVELYAN.—You are a member of the Library Committee of the Royal Dublin Society?—I am.

Library.

What is the state of the library?—It is at present in a transition state. We have lately got possession of a portion of the rooms hitherto occupied by the museum; but have not yet been able to avail ourselves of the increased space.

Evening Opening.

What is required to put it in a satisfactory state?—Funds for shelving and fitting up the additional rooms, and for opening the library to the public in the evening. The Library Committee had long been anxious to open it in the evening for the convenience of the public; but want of funds prevented them. At length they resolved at all hazards to make a beginning, and open it on three evenings in the week. They were, however, obliged to call on the Library Clerk and Porters to attend in the evenings as well as in the day, but were not able to give them any increase of pay. Until they are placed in a position to make more satisfactory arrangements they cannot possibly open it every evening; and until this is done the public cannot derive the full benefit of the evening opening.

What has been the result of opening it to the public in the evenings?—The number of evening readers has been steadily increasing. At the end of last year it averaged nine. But it appears from returns furnished to me by the Library Clerk for last month that it now averages eighteen.

What estimate has been made of the expenditure necessary to put the library in a satisfactory state?—A rough estimate was made that about £1000 would be required to shelve and fit up the library and library reading-room. Besides this an increase to the annual grant would be necessary, to enable us to continue and extend the evening opening to the public.

Should the evening opening be extended, and if so, what would be the additional expense?—I have no doubt the library ought to be opened every evening. For this purpose an increase to the annual grant to the library would be necessary to enable the committee to employ an additional porter, as well as to give increased remuneration to those already employed; and to provide for the expense of gas, fuel, &c., consequent on the freer opening to the public.

May the library be considered as practically open to the public? How is admission obtained?—It is to all intents and purposes open freely to the public. Admission is obtained by the introduction of a member; but the members are so numerous that no proper person finds the least difficulty in getting admission.

Do you consider it as free to the public as the library of the British Museum?—I think it is practically quite as free.

How have the contents of the library been obtained?—Partly by donation, but chiefly by purchase.

Contents.

What is the character of the books?—The Committee are very careful to select books of a useful class. They do not purchase books of fiction, nor of light reading, unless biographies and travels, and the standard reviews and magazines, be so considered. If a work be of high reputation, its being of an expensive character is rather an inducement to the Committee to purchase it, as being out of the reach of private purchasers. Within the last year they bought three scientific works of high reputation, the aggregate cost of which cannot have been far short of £150.

Expense.

What is the working expense of the library, and how distributed?—An annual sum of £500 is applied to the purchase and binding of books.

This is in addition to the salary and wages of Librarian and porters. Of this sum a very large part has to be devoted to binding. To illustrate this, and also to show how entirely the public good and not the advantage of the members is looked to in the expenditure of the money, I will mention a case. For the last few years the Government has presented to the library, as a donation, the published specifications of patents, on condition of their being kept in a way to admit of proper access to the public at all times. They are sent in sheets or paper covers, and have all to be bound; the expense of binding is enormous. From a return furnished to me by the bookbinder, it appears that in the six and a quarter years which have elapsed since they were first presented to us the total expenditure on them for binding, has been about £625; giving an average of £100 a year. The committee have been obliged to stop the binding for the present. As there were some back volumes included in the above, the bookbinder estimates the future cost at from £60 to £70 a year. But this is a heavy tax on the small annual vote of £500. The general binding costs about as much more. There are at present a vast quantity of books very badly in want of binding. The library will never be what it ought to be, as a national library, unless the sum at the disposal of the Library Committee is considerably increased.

Committee of Lectures.

How long are you connected with the Committee of Lectures?—Since its first establishment, nine years ago; at first as a member of it, and for the last six years as its secretary. Even at first, however, the chief portion of the arrangements connected with it were left to me, so that I acted in some measure as a kind of honorary secretary, the secretary, Dr. Ball, carrying out the details and conducting the correspondence. On his death I was unanimously requested by the Committee to undertake formally the duties of the office, which I did. They were pleased also to express their confidence in me, by requesting me at the same time to retain my seat as a member of the Committee. I did so for about a year, but finding it inconvenient to fill the double character, I resigned my seat, and Dr. Lloyd, the present Vice-Provost of Trinity College, was elected as my successor. I am now closing the work of my sixth year as secretary.

Functions of Committee.

Under what circumstances was this Committee formed? What are its constitution and functions?—In the year 1854 the Board of Trade, being desirous of relieving the Society of its educational functions and transferring them to the Museum of Irish Industry, proposed instead to apply the sum hitherto granted for that purpose to the exhibitional objects of the Society. The Society, however, believing its educational functions to be among its most important, and a main source of its influence and popularity, as well as usefulness, resisted the proposed change; and after much discussion, a deputation was sent to London to the Board of Trade, and the matter was fully discussed before the then President of that Board, Mr. Cardwell, who proposed a compromise, which was agreed to by the Society, and was to the effect that a joint board should be appointed, four members being nominated by the Government and four by the Society. This Committee was to have the entire management of all educational arrangements both in the Royal Dublin Society and also in the Museum of Irish Industry, excepting only what are called the technical courses, and in the provinces; and for this latter purpose the £500, which until then had been annually voted to the Society for provincial lectures, was handed over to the Committee to be administered by them. The Government took to itself for the future the appointment of professors, which the Society had hitherto enjoyed. All the documents relating to this matter will be found in vol. 90 of the Society's proceedings. The arrangement is embodied in the report of the deputation; a letter from Mr. G. A. Hamilton, the present Secretary to the Treasury, to Lord Justice Blackburne, in relation thereto; the resolution of the Society; and the letter of Dr. Playfair, expressing their Lordship's satisfaction with the arrangement as adopted

Professors. The Professors were transferred to the Museum of Irish Industry?—Certainly not. They were to be common to both establishments. Shortly after the arrangement, in 1854, an attempt was made to call them Professors of the Museum of Irish Industry. This was resisted, and it was proposed to call them Professors in the Department of Science and Art, as indicating their neutral character. The Committee of Lectures referred the matter to the Board of Trade, who decided that the latter title was the correct one.

But the votes for the Professors, as well as the £500, appear in the estimates under the head of the Museum of Irish Industry?—That was done without the cognizance of the Society or the Committee, who had no means of knowing it until they saw it in the estimates. The matter was commented on at the time, but it did not seem worth while taking any notice of it. as it was hoped the new arrangement would work satisfactorily, and so long as the money was forthcoming, it was not much matter under what head it was placed. The Museum of Irish Industry never had any thing to say to the £500 directly or indirectly. It was handed over to the Committee of Lectures to be administered at their sole discretion; and in proof of this, I will quote a passage from a minute of the Committee of 18th February, 1861, which was sent to the Department on the occasion of a proposed withdrawal of part of the grant to the Committee. It is as follows:—

> "Reference is made to certain minutes passed in the years 1856 and 1857, as sanctioning the manner of appropriation, and authorizing the usual grant of £500 a year. With one of these minutes, that of 7th August, 1856, the Committee are not acquainted, as it does not appear to have been ever communicated to them. The other minutes referred to have no relation to the £500 Parliamentary grant, but refer solely to the additional grant in aid given by the Department. The grant of £500 voted by Parliament had been administered by the Royal Dublin Society for many years. In the year 1854 an arrangement was entered into between the Government and the Royal Dublin Society, by which the administration of the vote was transferred to this Committee as representing both the Government and the Royal Dublin Society, and they have always since administered that sum in the manner which they in their discretion considered most advisable for the public service, and best calculated to effect the objects for which it was voted; subject to reporting their proceedings, and transmitting their accounts for audit to the Department."

System—Dublin. What is the nature of the system, and its mode of working in Dublin?—There are five Professors under the direction of the Committee, who every year deliver extended courses of lectures. As well as I recollect, there are about fifty lectures in each course. The latter, or technical portion of each course, for which a small fee is charged, is, however, withdrawn from the control of the Committee. The former part of each course, which is under their direction, is free to the public, and is delivered partly in the theatre of the Royal Dublin Society, and partly in that of the Museum of Irish Industry.

Lectures. Are there any courses of lectures free to the public?—Strictly speaking, there are no courses entirely free. It is only the introductory part of each course that is free. Before the Society came into connexion with the Department, in 1854, all the lectures were free to the public; but since the matter came into the hands of the Committee of Lectures, it appeared to them inconvenient to have a short introductory free course, and then an entirely distinct and paying course, in which much of the same introductory matter should be repeated. They, therefore, amalgamated the courses, and the free lectures are now only the introductory part of an extended course, which is carried on to its completion in the Museum of Irish Industry. You will find this stated in the introductory part of the programme issued yearly under the authority of the Committee.

What is the object of the introductory lectures?—They tend to draw an audience together, many of whom are induced to purchase tickets of admission, and follow the course to its conclusion.

Do you approve of the system of free lectures?—I do not see any objection to having the first part of a course free to the public. It is by no means an unusual arrangement, even in higher educational institutions, as in Trinity College and other places.

Do you not think that too large a part is free?—That is a fair question for consideration. It may be that the free part of the course bears too large a proportion to the paying part.

Of whom are the audiences composed?—Besides the members of the Society and their families, of a very mixed class of the public. They are pretty largely attended by females, by boys from the schools, and by the middle classes; scarcely at all by those who are able to procure instruction in these subjects in the only other place where it is to be obtained—I mean in the Universities. Generally, I may say, that they are not attended by University students. Audience.

Are they attended by the working classes?—I think not very much.

Why?—They have not in general the education to enable them to profit by instruction in science.

Is there any difference between the audiences at the free and the paid lectures?—In the early part of each course a class of registered students enter their names with the lecturer. These attend regularly the public introductory lectures, and on their conclusion follow on the technical course. Of course, their numbers are much smaller. Perhaps the public lectures may have an average attendance of about 200; the others perhaps 30. But I am not very sure of the numbers. I have not the reports with me.

Would not the persons who attend the free lectures be able to pay a moderate fee?—I think most of them would.

Has the giving these lectures any influence on the Society, in inducing persons to join it; and if so, what?—A very considerable influence. The Society sets a very high value on its educational character and functions. It keeps the Society constantly before the public, who see the great amount of good it is effecting. By means of the provincial lectures it is kept in constant communication with all the minor institutions throughout Ireland, and kept before the country public. This tends greatly to bring in members. The value to the Society cannot be estimated by the small amount annually expended on its educational objects.

Lord Justice Blackburne.—Are not persons led to join the Society with a view of aiding in this public good?—Undoubtedly, many join it with that motive. Of course, many also join from a lower motive—in consideration of the privileges they acquire.

Sir C. Trevelyan.—What would be the effect of abolishing the free lectures?—The immediate effect of charging for admission would of course be to reduce the attendance very materially. Suppose the attendance now averages 200. the effect might be to reduce it to an average working-class of 20. Now, at a charge of 2*s*. each, which is perhaps as high a fee as could be charged for a short course, you would receive 40s. towards the expenses of the course, a sum wholly unworthy of consideration, while you would have excluded 180 persons from attendance. Now, if only one or two of the persons so excluded would have been led to follow up the subject, a greater public good would have been effected than would be an equivalent for the 40s. Any change of this kind should, therefore, be well considered. We should be prepared, at all events, for a very large falling off in the attendance.

Place of Lecture.

Do you approve of the arrangement relative to the lectures in Dublin; part being delivered in one place, and part in another?—I cannot say that I think it very material where the lectures are delivered.

Does it not seem inconvenient that there should be three bodies engaged in the management of these courses: the Royal Dublin Society, the Museum of Irish Industry, and the Committee of Lectures?—It cannot be said that there are three distinct bodies engaged in the management. The Committee of Lectures is not distinct from the other two. It represents both, and so far as educational arrangements are concerned, excepting the technical courses, it is the only body responsible. Everything is done under its sanction and direction.

But does it not seem an inconvenient arrangement that a portion of a course should be under the direction of this Committee, and another portion under wholly different management, and how would you propose to remedy this imperfection?—It does certainly seem an anomalous thing that the Committee of Lectures, who have the entire direction of the educational arrangements throughout Ireland, and in the Royal Dublin Society, and also of a portion of those in the Museum of Irish Industry, should not have any control over the remaining portion of those in the Museum of Irish Industry. The Department is, however, itself responsible for this arrangement, and if it should desire to place the entire of the educational arrangements under the direction of the Committee of Lectures, one-half of whose members are nominated by itself, I do not see that there could be any objection.

Museum Collection.

Should the two collections in the Royal Dublin Society and the Museum of Irish Industry be maintained?—I am not aware that any advantage is to be gained by keeping them distinct.

Do you not think they would be more complete if they were concentrated?—Of course, if the same funds and the same energy were devoted to one Museum that are now divided between two, it would naturally be more complete.

Do you think that the amalgamation should be effected by transferring the collection of the Museum of Irish Industry here, or by making the transfer in the opposite direction, and why?—Undoubtedly, if there is to be an amalgamation it should be here. The Dublin Society is an ancient and highly popular institution, and, so far as I know, has the more valuable collection. The other institution is of recent origin, and being a creation of the Department, I suppose the Department can deal with it as it pleases—you could not interfere with the Royal Dublin Society without the consent of the members.

Would the collection of the Museum of Irish Industry be useful to the Royal Dublin Society?—I am not sufficiently acquainted with it to speak of my own knowledge; but from what I have heard I should say that some of it would be useful to fill up gaps in the Society's collection. A large portion would be merely duplicates of what they have already, and a considerable portion, though interesting in itself, should be excluded from want of room.

Provincial Lectures.

Sir C. Trevelyan.—We will now go to the provincial lectures.

Describe generally how they are conducted. Who are the Professors? How are they chosen? How are they paid? The number of Lectures? How and by whom are the examinations held?—The Committee have in their service a staff of Lecturers of high scientific position; the Professors of the Science and Art Department, *ex-officio*; some of the Professors of the Queen's Colleges and others, who have from time to time been added on special application. The Committee select, each year, some of these gentlemen to deliver lectures in provincial towns. They are obliged to reside in the town for three weeks. For this service they receive £50, out of which they have to pay their expenses, and to provide diagrams and apparatus. At the commencement of each year a number of applications are received from different towns; these are carefully investigated by the Committee, who select those they think most desirable. The towns so selected have each to pay £10 in aid of the funds of the Committee. An examination is held after the conclusion of each course, at an interval varying from a fortnight to two months, according to circumstances—perhaps averaging about six weeks. Until the present year the Committee have had a staff of four Examiners appointed each year, and distinct from the Lecturers for that year, who prepare the questions. I am present at every examination superintending it. The answers are in writing. The Examiners report to the Committee on the answers, and prizes are awarded.

I believe a sum of £400 was granted by the Department for this purpose?—Soon after my appointment as Secretary, the Department added a sum of £400 yearly to the £500 which the Committee enjoyed independently of them. This sum was applied primarily to the expenses of the examinations. It was also partly applicable to other purposes: travelling expenses, salary, fees to teachers, advertisements, &c. In fact, the line was not very definitely drawn between the two sums, as to the purposes to which they were applied. Each was applied in aid of the other. Some charges were placed sometimes on one, and sometimes on the other. So long as we did not exceed the £900 it was not very material how we divided it. The stipends to the Lecturers were, however, always paid out of the £500. The £400 was suddenly withdrawn in the beginning of 1861.

What is the position in society of those who attend these lectures?—The persons who attend them are, so far as I know, of a very mixed class. Largely composed of the families of the small shopkeepers in country towns, members of mechanics' institutes, young men belonging to literary and other associations, and boys from National schools, they also comprise a varying proportion of the better classes. In some places, however, these will not go near them, as they do not keep up any connexion with mechanics' institutes and other similar bodies. In others they patronize them freely. Their presence is of course desirable, as, besides giving character to the thing, they purchase tickets and help to make it pay its expenses.

Are the persons who attend, in any cases, of the artizan or operative class?—They are; but this class has, in this country, seldom sufficient general education to profit by scientific instruction. Shop assistants and the families of small shopkeepers, as well as boys from National schools, attend largely. If you go below these you will scarcely find the necessary previous education.

What number attend the lectures and examinations?—The average number attending the lectures is, I think, about 150; those attending the examinations average from fifteen to twenty.

What amount is paid by the local body?—Ten pounds. They also defray all the local expenses of the course, providing a room, lights, attendance, advertisements, &c.

How do they reimburse themselves, or are they reimbursed?—The fees received for admission go towards defraying the expenses; but they are rarely sufficient to cover the expenses.

Are not the courses generally free to the public?—We never had a course of provincial lectures free to the public. There has been always a charge for admission, excepting, of course, to the members of the institution applying for the course, and who pay in another form, viz., £10 in one sum. A few free admissions are, however, generally given to pupils from National schools, and others of a similar character, who are supposed not to be able to pay for admission. I beg to hand in an extract from one of our syllabuses in illustration :—

"NOTICE.—An examination will be held on the subject of this course, shortly after its conclusion, at which all persons, male or female, may present themselves, whether they shall have attended the lectures or not. Prizes will be awarded to all whose answering may merit the distinction.

"Those who intend presenting themselves at the examination should send in their names to James Campbell, Esq., Honorary Secretary, Palmyra Crescent. Professor Melville will give all information about Text Books, &c.

"TERMS.—Reserved seats for the course of ten lectures, 3*s.* 6*d.*; family tickets for four, 10*s.*; unreserved seats for the course, 2*s.*; family tickets for four, 6*s.*; single lecture to any part, 6*d.*; schools for the course, for each pupil, 1*s.* 6*d.*

"A number of free tickets, for National Schools, will be placed at the disposal of the teachers, and for mechanics at the disposal of the Committee of the Mechanics' Institute. Tickets to be had from the Honorary Secretary; and from Messrs. Croker, Clayton, and Nicholson, Stationers, &c. Two field excursions will be made on successive Saturdays during the course, open to all holders of tickets."

Who decides on the appropriation of the fees?—The Local Committee always. But there is rarely a surplus. The object of the course is not to make money, but to instruct. I will read our regulations on the subject of fees and contributions:—

"In order to manifest the interest taken by the locality in the proposed course, a local subscription of ten pounds is required, which must be deposited with the Secretary of the Committee before the delivery of the course is authorized.

"The amount and appropriation of the fees to be received for attendance on the lectures shall be decided by the Local Committee.

"In order to provide for the free admission of the pupils of National Schools, and of the working classes, arrangements may be made by the Local Committee for a certain number of free admissions to each course of lectures.

"The Local Committee will be required to take all necessary steps, by advertisements in the public newspapers, and otherwise, for giving due publicity to the intended course. All expenses of local arrangements and advertisements are to be defrayed by the Local Committee."

The lectures are delivered on alternate days. What is the object of that?—In order that the lecturer may not hurry over his course. He is required to remain in the town for at least three weeks, so as to afford ample opportunity to the students to consult him. He generally teaches the class who purpose going in for examination on the off days.

Who are the Examiners, and how are they paid?—They are Professors in the Universities, and are paid five guineas for each examination.

When are the examinations held, with respect to the lectures?—A few weeks after they terminate; on an average, perhaps, six weeks.

What is the object of the delay?—To afford the class time to read the text books recommended to them by the Lecturer.

The private instruction given by the Lecturer to the class is in addition to his public lectures?—It is.

Does he get additional remuneration for this?—No.

Then it is optional with him whether he does it or not?—It certainly is. But he naturally desires the credit of making his course successful. Besides we put a pressure onhim. In the report he has to fill up after the course, there is a separate column relating to these private classes, and if it appeared from this that he did not apply himself to this work, the probability is that he would not be employed the following year. The Lecturers are aware of this. Some, of course, are more zealous than others, and are in favour accordingly. Besides, as the Lecturer has to remain for three weeks in a country town, often dull enough, he may as well give an hour a day to this work as not.

You go to the towns yourself for the purpose of holding the examinations?—I do. The holding the examination is, however, only one object of my visit. I avail myself of the opportunity to confer with the Local Committee and Secretary—to inquire into what they have been doing, point out their deficiencies, give them advice, and discuss future arrangements. The stimulus thus given to them has produced a degree of activity and healthy exertion in these bodies, in relation to our science teaching, which did not exist before I took the work in hands, and is abundantly evident by looking into the results of the last few years.

Science Schools.

We will now go to the establishment of schools under the Science Minute. What has been done by your Committee in this respect?—In the month of October, 1859, the Secretary of the Department, Mr. Cole, being in Dublin, asked me to undertake the introduction of schools under the Science Minute into Ireland, for which, he said, my connexion with the Committee afforded great opportunity. I said, if the Committee approved of it, I would be happy to undertake the work; and at his request had a meeting convened for 17th October, 1859, at which Mr. Cole attended. Mr. Cardwell was also present, and took an active part in the discussion. The following minute was passed:—

"The Committee proceeded to take into consideration the Minute of the Department of 2nd June, 1859, relating to science instruction, with a view to extending its operation to Ireland, and adopted the following resolution. Resolved—That it is desirable that the operation of this minute be extended to Ireland under the management of this Committee. And in order to the more effectually carrying out its objects, that a portion (not exceeding one-half) of the annual grant to this Committee be applied to the establishing class-instruction, instead of the present system of professional lectures. The details of the measure to be reserved for future consideration.

"Maziere Brady, C."

I then immediately applied myself to the work, and entered into communication with those towns which I thought afforded the best prospect of success. The first thing to be sought after was to procure suitable teachers. This was not an easy matter.

How were teachers obtained? What were the difficulties?—The Science Minute contemplates resident teachers. None such were to be found. I could not find even in the large towns any one who was both competent and willing to take a Science Teacher's Certificate, and open a class. The Committee then decided on employing for a time teachers of their own, who should be sent to three towns in succession, for a period of three months in each. After considerable delay I procured a young man, who had been educated in the Museum of Irish Industry, and set him to work in Limerick, Clonmel, and Cork.

How was he paid?—The Committee guaranteed him a certain sum, I think £20, for each town, in addition to what he could make under the Science Minute. I think they afterwards made some addition to this.

What were the results?—The Limerick class failed entirely. That at Clonmel was successful enough, except in its financial aspect. A special examination was held there in December, 1860, by the Department, and the answering was very good. The teacher then went on to Cork, where I had arranged with the Committee of the Royal Cork Institution to open classes. The classes were numerously attended. A large proportion, however, of those who entered were found not to have sufficient education to qualify them to profit by science instruction. However, fifty-eight presented themselves at the examination of the Department in May, 1861, with marked success. I give the following extract from the Report of the Committee of Lectures for 1861:—

> "With reference to the passed students, the general character of their answering appears to have been excellent, they having taken four out of the six National Medals (including both the silver medals), and nineteen prizes, of which eight were first-class. This is the more remarkable, as there appears to have been very considerable competition, twenty-two teachers in the large towns in England and Scotland having brought up classes to the examination in chemistry; the Cork class, nevertheless (the only one in Ireland), carried off two-thirds of the medals and more than half of the entire number of first-class prizes awarded."

The same remark, unfortunately, applies to this school as to Clonmel. It did not pay its expenses. It was, consequently, not without considerable difficulty that I induced the Committees in these places to try the experiment a second year.

Did the Committee find the three-monthly system to work well?—No. They found that it did not work satisfactorily, in consequence of the long interval between the conclusion of the first class and the examination in the following May, so that the class became scattered, and they decided on sending the teacher to only two towns in the year. He was accordingly sent to Clonmel and Cork, to prepare classes for the examination of 1862. I thought to have procured a resident teacher in Limerick, but failed. I endeavoured also to start a school in Belfast, but found extreme difficulty, as well from various local circumstances which opposed the establishment of such a school, as from the difficulty of finding a teacher. After much correspondence, however, and personal interviews with influential persons in Belfast, and attending meetings there, I overcame the first difficulty, and formed an influential Committee. They, however, required us to start the affair by a public course of lectures by Professor Jukes, so as to draw public attention. The difficulty as to the teacher remained. I tried in all the colleges, but no one was to be found willing to undertake it. University men aspired to something higher.

Did you proceed to get into communication with English teachers, failing to find them here?—I did. I felt it, however, a serious responsibility to take a teacher from a situation in England, and bring him over here to try an experiment which might prove an utter failure. I had a good deal of correspondence on the subbject, and went over to England to have personal interviews with some teachers. Finally, however, I entered into an engagement with Mr. Tate, who had been engaged at a school in Bristol. The Committee undertook to give him £40 in addition to his payment from the Department. The class was well attended, being chiefly composed of persons who had attended Professor Jukes's preliminary course, and were thus attracted to the subject. In connexion with the Belfast class, I formed Committees in Carrickfergus and Lisburn, to open similar classes, these towns being within reach of Belfast, so that Mr. Tate was able to take charge of the three classes. I also formed another class in Belfast, under a distinct Committee and teacher, Mr Eardley. I adopted a similar course in the south, and opened a class at Bandon, in connexion with the Cork school. I had thus in all seven schools in operation, preparing for the examination of May, 1862. I have also tried to start schools at Waterford, Portlaw, and Londonderry, but as yet without success.

Will you state the results of this year's teaching?—The result of the examination in May, 1862, was in the highest degree creditable. Mr. Tate's pupils took six medals in geology, a gold, two silver, and three bronze. Mr. Dowling's, a gold, two silver, and a bronze in chemistry, a silver in zoology, and a gold in botany. Mr. Eardley's, two bronze medals in physics. Mr. Tate's pupils also took eighteen first-class, twenty-two second, and twenty third-class prizes in geology and mineralogy, besides prizes in zoology and chemistry. Mr. Dowling's in all took, I think, twenty-seven first-class, twenty-five second, and ten third-class. Mr. Eardley's, three first, nine second, and seven third. The contrast between these results and those obtained in England shows greatly to the advantage of our Irish schools. Thus, in all England, there were only two first-class prizes in geology, although there were seven or eight classes in operation there, some of them equal or superior, in point of numbers, to the Belfast class—as, for instance, at Liverpool. Mr. Tate has furnished me with the following comparative table;—

The following table represents the relative standing of the several classes. In the first column occur the names of the teachers of classes held at ——; and succeeding columns, 1st, 2nd, and 3rd grade, Queen's prize; and passed students; and, lastly, the total number of passed students. The number of unsuccessful candidates cannot be obtained:—

Subject, Geology; Examiner, Professor Ramsay, F.R.S.G.S.

Teachers.	1st.	2nd.	3rd.	Passed.	Total.
R. Tate, Belfast, Lisburn and Carrickfergus,	12	12	14	17	54
G. Jarmain, Huddersfield,	2	–	2	5	9
J. Dowling, Bandon,	–	4	–	2	6
E. S. Wood, Bristol,	–	4	–	5	9
M. Pullen, Stroud and Painswick,	–	3	3	40	46
E. H. Birkenhead, Liverpool and Wigan,	–	2	7	27	36
H. Fulton, Bristol,	–	–	1	4	5
J. Plant, Salford,	–	–	–	–	5
Professor King,	–	–	1	–	1
J. Tennant,	–	–	1	–	1
Self-taught,	–	2	1	5	8
	14	27	30	110	180

Subject, Mineralogy; Examiner, Professor Smyth, F.R.S.G.S.

Teachers.	1st.	2nd.	3rd.	Passed.	Total.
R. Tate, Belfast, Lisburn and Carrickfergus,	6	10	6	9	31
J. Dowling, Bandon,	1	4	–	–	5
J. Rowden, Bristol,	5	1	–	3	9
E. H Birkenhead, Liverpool and Wigan,	2	–	1	5	8
J. Plant, Salford,	–	–	–	–	1
R. Pearce, Truro and Redruth,	1	–	2	–	3
J. Tennant,	–	–	1	–	1
	15	15	10	18	58

To what do you attribute this success?—Great exertions were undoubtedly made by our teachers, but I have no reason to suppose that the teachers in England and Scotland were less able or energetic. I am, therefore, obliged to attribute this extraordinary success mainly to the taste for science spread by the previous operations of the Committee of Lectures, and the knowledge acquired at their lectures and examinations. The pupils who formed these classes had, in most instances, availed themselves of the previous instruction given at our lectures—as, for instance, at Mr. Jukes's course at Belfast. In fact, I look on this success as a conclusive testimony to the utility of the work carried on by this Committee, and as showing that the instruction given is not of that very superficial character which seems to be assumed. It is right that I should also state that I exercised myself a close supervision over these schools, being in constant communication with their committees, visiting them and inspecting the classes occasionally, stimulating them where I saw a want of zeal, smoothing down difficulties and jealousies, which I too often found to exist. To all these causes combined I attribute the great educational success of these schools.

What is the rule with respect to payments? What are the fees charged for the respective courses?—I think about 5*s.* for the evening course, and 10*s.* for the day course.

Who determines the amount and appropriation of the fees?—The Local Committee.

Who attend the day, and who the evening classes?—The evening class is chiefly attended by young men in business, and sons of shopkeepers; the day class chiefly by females.

Are they attended by operatives or artizans?—The majority of those attending them scarcely come within my notion of operatives or artizans. Some such, however, I believe, attend; but in general they have not sufficient education to profit by such teaching. I will quote a passage on this point from the Report of the Committee for 1860:—

> "The difficulty in the way of establishing schools is also much enchanced by the regulations of the department, which though, perhaps, very suitable to England, seem scarcely adapted to the present social condition and state of education in this country. Elementary education has not yet advanced sufficiently among the humbler classes to spread among them either the desire or the ability to study such subjects as come within the action of the department. This country being chiefly agricultural, and manufactures being as yet but slightly developed, that large class, known in England as operatives and artizans, and to whom the department chiefly addresses itself, may be said to have but a limited existence here. Accordingly, the rule which limits the benefits of the Science Minutes, at least so far as the teacher's remuneration is concerned, to operatives and their children, virtually excludes most of those whose previous general education would qualify them to derive benefit from instruction in scientific subjects. Among those who have availed themselves of the instruction given under the directions of the Committee, no inconsiderable proportion consists of children of country shopkeepers, farmers, and other persons of small means, who, while their whole annual income, in many instances, probably does not exceed that of a well-paid English operative, and while they must either obtain instruction of this nature for their children through the machinery brought home to their doors by this Committee, or be wholly debarred from it, are yet unwilling to rank themselves as operatives or artizans, even if they could be brought within the meaning of these terms as defined by the department."

The class who attend correspond in point of education to operatives or artizans in England?—I am not able to say.

Lord Justice Blackburne.—Generally it is the lowest stratum of society in this country capable of receiving such instruction?—Undoubtedly.

Sir C. Trevelyan.—What were the subjects in Belfast?—Chiefly Geology and Mineralogy, also Physics and some minor classes.

What in Cork?—The principal subject was Chemistry. There were classes also in Zoology and Botany.

What were the numbers on the roll in Belfast, and how many went in for examination?—In Geology I think there were about ninety on the roll; fifty-four of whom went in for examination; all of them passed.

What were the numbers at Cork?—The first year there were about 200 on the roll; but the majority of these being strictly artizans, were found to be incapable of receiving the instruction, and only fifty-eight were examined. The second year the Chemical class had fallen to about thirty; of whom only seventeen came up for examination.

What were the receipts of Mr. Tate and Mr. Dowling?—Independently of what they received from this Committee, I should say £150 or upwards.

What is the present state of these schools, financially and generally?—Financially they have been a failure. The receipts from pupils have never covered the expenses—except, I believe, in Belfast, where they about sufficed for the working expenses, not including apparatus or diagrams. The result is that I have had extreme difficulty in inducing the Local Committees to continue them. Even in Belfast it is only after much negociation that the Committee there has continued in charge of the school for another session. Mr. Tate has, however, had to take the entire risk and management of the school on himself, and to pay for the use of a room; and he stated to me that he would not do so but for his connexion with the Committee of Lectures. The position this gives him in the eyes of the public he finds to be of very material aid, even though they are not able to continue pecuniary assistance to him during the present year, in consequence of the withdrawal of so large a portion of their funds. This Committee, however, issues syllabuses, and in every way lends him the sanction of their names and local influence, which is considerable. The class at Lisburn has been also resumed, and I have been just attending a meeting of a Committee in Banbridge, where I hope to establish a school. From what Mr. Tate said to me, I think that he does not like the precarious nature of the work—he is on the look out for other employment, and I fear we may not have him another session. In the South the difficulty has been much greater. The losses of the Committee of the Royal Cork Institution for two sessions were so considerable, that they positively refused to have any thing more to say to the matter. However, after some correspondence, I went there the other day to try and bring about some arrangement, and they have agreed to continue to act as a Committee, and also to give the use of a room—the teacher, however, to pay all expenses—gas, fire, advertisements, &c. I do not know if Mr. Dowling will undertake this. He has hitherto refused, although he has advantages over Mr. Tate—having the free use of a room and apparatus, with both of which Mr. Tate has to provide himself. The schools at Limerick and Clonmel are for the present closed.

Do not the payments made to Mr. Tate and Mr. Dowling seem sufficiently liberal to induce them to carry on the schools at their own risk?—The payments both to Mr. Tate and Mr. Dowling for the past session seem to me very liberal. Still they feel there is so much uncertainty in the matter, that they are slow to take the risk on themselves. Their very success in the past session in some degree militates against them, as their numerous prize pupils are disqualified from taking prizes again; while in England, owing to the very small number of the higher prizes taken, most of the pupils can come forward again with the advantage of a second years' instruction. Besides, so much energy was displayed at the start in beating up classes, that we have probably made a pretty clean sweep of the scientific taste and talents of these towns. Much of the success was also owing to the previous instruction given at our lectures. The teachers, therefore, feel no security that their classes will continue to be sufficiently numerously attended by diligent students to remunerate them. Thus, the Cork class fell from 200 in the first year to 30 in the second year. The teachers, from their experience, are the best judges of this; and I look on their unwillingness to undertake the responsibility without some guarantee from this Committee, after the marked success of the last examination, as a very decided proof of the extreme difficulty of establishing such schools on a satisfactory and self-supporting basis.

These schools do not seem then to be in a very sound state?—I certainly cannot consider them on a sound basis, or likely to be permanent, until local resident teachers are procured, who, having other employment during the day, are not dependent on the results of their teaching for their subsistence; but merely look to it as a means of occupying their leisure hours, and adding to their income. I am constantly looking out for them, but is not easy to find them. Almost the only class of men suitable are the National School teachers, and of these only the better class. It is only in very rare instances that their other duties will allow them to undertake extra work of this kind. I have procured one in Belfast, Mr. Eardley, whom I sent over to London last November to take a certificate. He has opened a larger class this year; but I should not be surprised at any moment to hear of his promotion and removal from Belfast, which would put an end to his classes. I am sending forward a National School teacher from Galway in November, and I believe one may go from Bandon. I had also one in view at Limerick, but he has changed his mind.

There are two modes of teaching—one by lectures, the other by individual teaching. Which is the more conducive to satisfactory instruction in science? Which is the more sound instruction?—I think the combined use of both is most likely to lead to satisfactory results. It is sanctioned by the usage of the universities. But I prefer answering the question in the words of a higher authority than my own. I quote from the Report of the Committee of Lectures for 1860, in which they cite a joint resolution of the Royal Society of London and of the British Association on this very point. The passage is as follows:—

"On the whole, the Committee consider that the combination of the two methods, as now carried on, viz., short public courses delivered by eminent men of science, followed, after an interval, by an examination set by a competent examiner, and class or school instruction for a longer period, by teachers sufficiently qualified for this purpose, is perhaps the best arrangement which present circumstances will admit of, and the most advantageous mode of applying the limited funds at their command. They are confirmed in this opinion by finding that it is exactly the course recommended in a series of resolutions, adopted by the Council of the Royal Society of London, and concurred in by the Council of the British Association for the Advancement of Science, in the year 1857, on the question as to whether any steps could be adopted by Government or Parliament, calculated to promote the cause of science in this country. From these resolutions, to which their attention has been called by the Rev. Dr. Lloyd, late President of the British Association, and a member of this Committee, they extract the following passage:—

"'The President and Council (of the Royal Society) recommend that the establishment of classes in metropolitan and provincial schools, where those who have not the means or opportunity of studying at the Universities may be taught the elements of Physical Science, on a systematic plan, be promoted by grants from Government, in aid of such funds as may be locally contributed for that purpose. That the formation of provincial museums and libraries be encouraged in like manner, and that provincial lectures, accompanied by examinations, be established in Great Britain, in towns which request this assistance and engage to provide a part of the expense; such lectures to be in aid of the schools above-mentioned. So that, by means of the two combined, a sound knowledge of the principles and applications of science may be systematically taught.'

"It is a gratification to the Committee to find that the course they are following agrees so closely with that recommended by these learned bodies, perhaps the highest authorities in the kingdom on such a subject."

Does not the success of the Cork and Belfast Schools show the superiority of the system adopted in the Science Schools?—That success is largely owing to the work we had been previously carrying on; and is rather an evidence of the amount of real good we had been doing. Great exertions were also made both by the teachers and myself to start the thing well—perhaps more than it would be reasonable to expect again. On this point, however, I again prefer to appeal to an authority which cannot be disputed. I quote a passage from a report of the Committee of Lectures for 1861 :—

> "In conclusion the Committee think it right to state, that the results of this year have confirmed them in the views put forward at length in their last year's report, that the system of provincial lectures and examinations which they have been carrying on for the last few years is not opposed to that of class instruction by certificated teachers, but on the contrary affords the best means of gradually introducing it. In every instance in which the Committee have succeeded in starting such classes their success has been directly and immediately owing to the opening made, the relations established, and the taste for scientific knowledge disseminated by their previous operations. It is not too much to say, that but for the provincial lectures which have been given for some years there would probably not now have been a single class in Ireland under the Science Minute. They trust that my Lords will appreciate the correctness of the conclusions to which experience has led this Committee, and that the grant so usefully administered by them may be restored to its former amount."

May not the want of success in the Science Schools (financially) arise from the rivalry of the old system?—I have already endeavoured to explain that there is no rivalry.

In the case of provincial lectures the Government provides the lecturer without expense to the locality. In the other, payments are made by the local body. Can these systems co-exist, and are they not in rivalry?—That is not so. In the case of the provincial lectures the Local Committee, besides defraying all local expenses, have to pay us £10 for the teacher. In the other they get him without charge. There is, in fact, a premium offered in favour of the Science Schools.

The want of success in the schools is attributable to the want of local teachers?—The first difficulty that meets us is that of procuring local teachers.

Is not the system of Science Schools calculated to meet the want?—It offers inducements to teachers, but affords no means of instruction to young men desirous to qualify themselves for the employment. In this country, from various causes, they have not yet come forward to any extent. In fact none have yet availed themselves of the advantages offered, except those I have myself brought forward. I am always on the look-out for them whenever I go to a provincial town.

Is not a condemnation of the lecture system involved in this, that it has not been reproductive. It has not produced teachers?—I think not.

Does the lecture system go to raise a class of trained teachers?—It has no direct machinery for producing teachers. The scanty funds at the disposal of the Committee would not permit it.

The lecture system has been established a long time and has not produced these results?—We cannot say how many of those who may avail themselves of the teachers' certificates may have been led into the paths of science by the system that has been at work. It is certain that it has been the means of introducing the system of Science Teachers and Science Schools into Ireland.

As long as Government supplies teachers from public funds, will local exertions be made to provide instruction in Science?—The teachers in both cases are paid exclusively by public money. The difference in this respect is only in the mode of payment.

Is it not a fact that under the Science Minute the teachers are paid upon results?—Certainly.

Is not that the most effectual way of securing sound instruction ?—It is the surest way of getting value from the teachers. I have not the slightest objection to the new system. I think it is excellent. I only say that there is nothing antagonistic in the two. Our system helps yours.

Which is the most certain and effectual system. Instruction of a superficial character by lectures or sound individual teaching ?—That is assuming the whole question. It is quite a mistake to suppose that the instruction given by our lectures is of such a very superficial character as you appear to assume. I must explain the real nature of our work a little more fully. Both the lecturer and myself get into communication with the Local Committee, perhaps, a couple of months before the course is to begin, with a view to organizing a class of students to read for the examination. The Lecturer recommends certain text books to them for study in the interval. When he goes to the town he is bound by our regulations to remain there for at least three weeks, so as to give the students ample opportunities of consulting him. He generally meets the special class who intend going in for examination on the alternate days, putting questions to them, and explaining any points on which they may feel a difficulty, and giving them directions as to their studies in the interval up to the examination. Some five or six weeks after the course terminates the examination is held. The work connected with each course thus extends over a period of three or four months. The questions at our examinations are far from being of a superficial character, and will bear comparison even with those set by the Department for examination after a year's study. In proof of this I beg to hand in the examination papers of the last three years. There are amongst them several papers on Geology. Sir Richard Griffith, as a geologist, will be good enough to compare them with the paper set by the Department for the last May examination, which I have here, and say whether our questions are not quite as searching. The answering, on the whole, has been found to give fair evidence that good has been done, and sound instruction given. The results, being reported on by independent examiners, unconnected with the particular courses of lectures, and men of high university position, are of course above suspicion.

This arrangement is based on a system of lectures after which there may or may not be an examination ?—We never gave a course of lectures without examination, since the examinations were first introduced. We make the formation of a class for examination a condition of giving the course. You will see this in the form of application which has to be filled up by the Local Committee. They have to answer the following query :—

> "Is it intended to form classes for instruction in the subject of the proposed course, and have any steps been as yet taken in reference thereto ?"

If it were answered in the negative, they would not get the course. I will also read to you one of our regulations, which is as follows :—

> "After each course of lectures an examination will be held, and prizes and books will be awarded to all candidates whose answering may merit the distinction.
>
> "The main object of the provincial lectures being to afford an opportunity of acquiring useful elementry knowledge in science to those who have no other means of obtaining it, and the results of the examination affording the only test of the success of the course in this respect, it is expected that every effort will be made by the Local Committee to form a select class of students, who will *bonâ fide* prepare themselves for the examination by diligent attendance at the lectures, and by procuring and studying the text books recommended by the lecturers."

Under the Science Minute, aid is given by payment on results. In the other the examinations may or may not be satisfactory?—The result of the examinations is, of course, uncertain. But there is always an examination.

The new system depends on local co-operation. In the old the Local Committee may be illusory?—Not so. In our system the Local Committee is always and necessarily *bona fide* and active. In the school system there is a tendency to let the whole thing fall into the hands, and under the sole direction of, the teacher. The Belfast school is a case in point. Mr. Tate has had to take the whole arrangement, responsibility, and risk on himself. The Committee may, therefore, be looked upon as almost illusory. They will have nothing to do until the examination.

In the new system payment must be for value received. In the old system there may be no value?—Even considering the results of an examination to be the only test of value, we have a very important check, both upon the teacher and the locality, in this—that if the result were not found satisfactory, it would be visited upon the party in fault—if the teacher, by not employing him the following year; if the local body, by not giving them another course. The direct scientific instruction is, however, far from being the most important benefit resulting from these lectures. The stimulus and aid they give to mechanics' institutes, young men's associations, literary institutions, and such like, is, in my opinion, a far greater public good. I quote the following passages from the Report for 1860, before referred to, and the Appendix to that Report:—

> "Short courses of public lectures, followed, after an interval, by an examination, as carried on by this Committee during the last few years, appear to be well suited to the present condition of the country, and calculated to draw public attention to the subject, and likely gradually to open the way to the introduction of a system more in accordance with the views of the Department. The answering at the examinations has shown that, in many instances, a considerable amount of continuous attention and study has been given by the students to the several subjects; but the indirect results which have followed, and which cannot be measured by statistical returns, appear to be not the least important of their effects. These courses (which have long been an institution in this country) have been the means of largely increasing the usefulness of local literary and scientific institutions, and mechanics' institutes, perhaps even of keeping them in existence. They have led to the establishment of these useful institutions in places where they previously did not exist as, for instance, at Portlaw (see Report in Appendix III.)"

Extract from Report of Dr. Martin, of Portlaw :

> "Having consulted many of those who attended these courses of lectures, I find, that all are unanimous in their opinion of the good service which they have done in the locality. To the course delivered by Dr. Kinahan is due the establishment of our Literary Society, which, considering the class of those who constitute it, has had great success. It has now been in operation for nearly two years. It numbers over one hundred members, possesses a reading room, and a library of over 600 volumes. It holds meetings weekly during ten months of the year, a paper being read on some historical, geographical, or literary subject, on one night, and a debate being held on the alternate nights. The following are a few of the subjects on which papers have been read :—
>
> 3 On Chemistry.
> 3 ,, Physiology, Digestion, Respiration, and Circulation.
> 1 ,, Theory of Wind Currents.
> 1 ,, History of Chinese Manners and Customs.
> 1 ,, Ditto of Japan.
> 2 ,, Arctic Voyages.
> 1 ,, Punctuality and its advantages.
> 1 ,, Who are the truly great? The Workers.
> 1 ,, Penny Banks.
> 2 ,, Astronomy.
> 1 ,, Physical Geography.

And many other allied subjects, with occasional readings from Macaulay's poems, Shakspeare, Goldsmith, &c. This series will evince the amount of mental activity excited amongst us, the more so when I tell you that some of the most interesting papers were the productions of working men, who never made an attempt of the kind before. Although the subject of the last course of lectures delivered by Dr. Melville was entirely new, and one about which, at first, but little interest was felt, yet the attendance was fair; and before half the course was over, all felt that they had got hold of a subject calculated to give them much pleasure, and lead them into new phases of thought. Many of the working people who attended them say that their rambles are now more interesting than they ever were before, as they have always before them new subjects for inquiry and reflection."

I have given these extracts rather fully, because I believe they are of extreme importance as showing the real nature of the public good effected by us. The inhabitants of Portlaw consist, almost exclusively, of operatives connected with the great factory of the Messrs. Malcolmson. There are very few indeed among them with leisure and education sufficient to give them much chance of success at the annual examinations of the Department. I think the Commissioners will agree with me that the establishment of one such association as that at Portlaw, which brings these artizans together after work-hours to an innocent and intellectual enjoyment, and keeps them out of the public house, is effecting a greater permanent public good than if we brought up 100 prize students to an examination, and is an ample return for the money paid to the Lecturer.

Admitting this, and other good, may not the time have arrived for introducing a more peıfect system of scientific instruction?—The existing system may perhaps admit of improvement in many respects, and by a harmonious action with the Department, there would be no difficulty in carrying this out. But the Department has already, I fear, been premature in interfering with the Committee. The sudden withdrawal of nearly half of their funds, by depriving the Committee of the means of fostering their schools, which are yet in their infancy, has even now endangered the existence of these schools, which opened with such promise of success.

Is it likely that local co-operation will be forthcoming to establish Science Schools so long as free public instruction is given, as by these lectures?—I think I have already answered this. The instruction we give is not free to the public, and it appears to be an excellent machinery for gradually introducing the Science Schools.

Captain Donnelly.—Do you think if places in England could for £10 obtain the services of such men as Professor Huxley, for instance, to lecture, a young private teacher would be found to enter into competition to teach, or that the necessary local exertion would be made to establish his school?—A course of lectures by Professor Huxley, if delivered in connexion with an existing Science School, and with a view to give it an occasional stimulus, and draw public attention to it, would be one of the most powerful auxiliaries to a Science Class. I know it is so in this country, and I suppose it would be so in England also; at least I have the united opinions of the Councils of the Royal Society of London and the British Association, which I have already read, to this effect, and I suppose you will admit this as a sufficient authority. I can speak as to facts in this country, and not merely as to opinion. The local Committee in Belfast, who are the best judges of what may conduce to the local interests of their school, found it necessary to have a public course from Professor Jukes in connexion with their class. It was attended with the best results, and was the means of bringing together the class who distinguished themselves so much at our examination in May. The very same was done in Cork:

after the school was some time in operation they found it desirable to have a public course in aid.

I think the new science system would make but little progress in England if Government gave £500 a year for the payment of Lecturers?—I am satisfied to rest on the opinion of the Royal Society on this point.

Sir C. Trevelyan.—Admitting that the lecture system may be good as an introductory and provisional one. May it not be kept on so long as to prevent the introduction of the other?—I have no grounds for supposing that. It has hitherto been the means of introducing and spreading the new system, and if that system be the better of the two, I suppose the old will gradually merge into it.

Lord Justice Blackburne.—Would it not be always competent for the Committee to see whether the lectures in any place would interfere with the Science Schools?—Undoubtedly.

Is it not at all times in the power of the Committee to regulate their lectures so as to provide for the necessities of the place where the lectures are sought?—Unquestionably.

Sir R. Griffith.—Does not the Committee exercise a careful scrutiny into the circumstances of every application, with a view to selecting those they consider most desirable?—They inquire most rigidly into the circumstances connected with every town and every Lecturer; and if they found their system likely to be abused in any locality, they would withhold the course. They have always more applications than they can grant, and are obliged to put some off with promises for the following year. They are at this moment under promise to several towns for next year which were disappointed this year.

Sir C. Trevelyan.—So long as local parties have the option of getting professors to lecture, is it likely that they will exert themselves for the establishment of Science Schools?—The best answer I can give is to point to what I have effected during the last three years with the co-operation of the local Committees.

Is it probable, so long as their attention is directed to the instruction given by professors sent down to lecture, that they will avail themselves of individual local teaching?—It is the very best means to stimulate them, and create a desire for permanent teaching.

Experience shows that the pressure of a local demand is necessary to the establishment of a school. Can that pressure exist if the lecture system exist?—The lecture system, in creating a taste for science, makes them feel the want of instruction, and thus seems to supply the very pressure necessary for the establishment of a permanent school.

The lecture system may be considered then as a scaffolding for the erection of a permanent building. Don't you think the time may be come for taking down the scaffolding?—I fear not.

Lord Justice Blackburne.—I am afraid if you take down the scaffolding too soon the building will never be finished. Supposing the lectures were entirely discontinued, can the other system be practically worked, and can masters be found?—The facts and documents I have brought forward would seem to show that at present we can hardly expect this.

If we abolish the present system, is it not the fact that the other will be abolished also?—There would be some danger of it. I do not think the teaching of our high class Lecturers can yet, with advantage to the public, be set aside in favour of Science Schools, taught by teachers generally of much inferior qualifications. I will read the opinion of the Committee, which must have more weight than mine.

"The Committee have entered thus fully into this subject, as they apprehend that the Department is not fully aware of the benefits resulting from these public courses of lectures, and would rather see them wholly replaced by school or class instruction; and they are impressed with the belief that any attempt to force on such a change too suddenly would not be judicious, being not unlikely to be attended with failure, and perhaps leading to a virtual exclusion of this portion of the kingdom from the benefits of the action of the Department; while at the same time, they cordially concur in the desirableness of gradually introducing a more systematic plan of instruction, according as the spread of education among the humbler classes, and perhaps the increase of manufacturing energy may prepare the way for it.

This is taken from the report for 1860; and as I have so often referred to that report as an authority, I think it right to state that it was carefully prepared by a sub-committee, and adopted by the Committee after full deliberation. Unusual care was given to the preparation of that report, as they desired in it to lay before the Department correct views of the nature and effect of their operations.

If we abolish the system of lectures, what will be the state of the country as to science instruction?—I am afraid not very satisfactory. I will give you the words of Sir John Young, late Chief Secretary for Ireland, who was one of the earliest members of this Committee, and had an opportunity of witnessing the effect of one of these courses in his own town of Bailieborough. I quote from the report of 1860:—

"From the Report of Sir John Young, President of the Bailieborough Literary Society, and late Chief Secretary for Ireland, a gentleman intimately acquainted with the social circumstances and wants of this country, they extract the following passage:—'I may safely affirm that the discontinuance of these lectures would deprive a rising and intelligent class of people of sound elementary instruction in various branches, to which it is most desirable, in every point of view, they should have access, but to which their chance of access is small indeed, except through the door opened to them by your Committee.'"

Any interference with the functions of the Committee in this respect would be highly unpopular. I can bring a mass of evidence in support of this statement, and I beg the attention of the Commissioners to this point. In September, 1860, the Committee, being anxious to collect the opinions of the different local bodies on the working of the system, sent round the following circular:—

"Science and Art Department,
"Committee of Lectures, Dublin Castle,
"September 12, 1860.

"Sir,

"The length of time during which the system of provincial lectures and examinations, under the direction of this Committee, has been in operation, appears to be sufficient to allow a fair estimate to be formed of its value and utility in diffusing sound elementary instruction in practical science, especially among the artizan and working-classes.

"It is desirable that those local institutions, through whose co-operation and agency the system has been worked, should furnish statements or reports of their experience on this subject for the information of this Committee and of the Department, in order to enable them to judge how far it may be advisable to continue these lectures and examinations.

"I have, therefore, to request that you will furnish me, at your earliest convenience, with a report, containing the views of the local committee or institution which you represent; adding any suggestions which may appear likely to be useful and practicable.

"I have the honour to be, Sir, your obedient servant,

"F. J. Sidney, ll.d., Secretary.

"To ——."

The numerous reports received in answer to this circular are well worthy of your attention, and afford conclusive evidence of the great amount of good done, and of the value set by the local bodies on the work carried on by us; and as in an inquiry of this kind, which affects all these bodies as much as it does the Committee of Lectures, who are in some measure only trustees for their benefit, all these bodies have a right to be heard, I beg to offer as evidence on their behalf these their official reports, which will be found collected in Appendix 3 to the Report for 1860.

Lord Justice Blackburne.—Are there in the various towns persons qualified to undertake the teaching of these schools?—Not as yet. They will, I hope, gradually spring up.

Sir C. Trevelyan.—Has not the new system operated directly to produce masters?—I do not think it can be said to have produced them directly, as it affords no means of training them. But it has a most beneficial tendency to encourage teachers. I would not be understood to say a word in disparagement of it. It is, I feel assured, an excellent system, and I hope to see it gradually make its way here; but I would not like to see it injudiciously forced on to the destruction of a system which has undoubtedly been working much good.

Why does it succeed in England without a lecture system?—I suppose because the circumstances of the two countries are different. But I think it is better to confine myself to matters on which I can speak with some confidence—the position and wants of Ireland in this respect.

The lecture system is peculiar to Ireland. The other is general throughout the whole country. Is not that an advantage?—The very circumstance that gives our Committee so much weight and popularity in Ireland is that it is composed of Irishmen of high position, familiar with the state of the country in its social and educational aspects, and able to modify and adapt their rules to the circumstances and requirements of particular localities. The rules of a universal system must necessarily be inflexible, and may sometimes operate injuriously. One circumstance that makes our teaching and examinations so useful and popular in Ireland is that they are adapted to the locality. Thus, in a course on geology, the Lecturer directs his attention as much as possible to the geology of the neighbourhood, and the examination turns largely on local features Here are two or three questions from our geological papers :—

"24. Draw a rough section through Belfast, and describe it with especial reference to the chance of finding coal in the counties of Antrim and Down."

"19. Describe the way in which the sedimentary beds of the county of Antrim are altered by the *Basalt* and the Trap dykes.

"20. Make a section from the oldest of the sedimentary rocks of the county of Antrim upwards, showing the relation which the Basalt bears to the other rocks of this county."

"20. Give a generalized section from the River Lee to the sea, and point out the position and age of the rocks in the neighbourhood of Bandon."

"18. Describe the junction of the Old Red Sandstone and Greywacke at Mount Misery.

"19. What are the localities for *Graptolites* in the county of Waterford?

"20. What were the animals whose bones were recently found at Dungarvan in a limestone cavern?"

"8. What are the chief subdivisions of the Carboniferous rocks in Ireland; and how do they differ from the corresponding rocks in England and Wales?

"9. What are the rocks of which the county Waterford is principally composed?

"10. The localities of Tallow Bridge and Dunkitt are famed for their fossils; what are the chief fossils found in each place?"

Of course a general set of questions for the whole country is not specially applicable to any particular locality, and therefore loses much of its interest. Any questions in the examinations of the Department in geology having a local bearing invariably relate, as might be expected, only to English localities. No reference is made to Ireland. Again, a frequent subject of our courses is Agricultural Chemistry, the importance of which to this country I need scarcely point out. No such special course is provided for by the regulations of the Department.

You propose the lecture system as a missionary system, with a view to the ultimate more satisfactory system of class instruction?—I think, as regards its relation to the science schools, you have aptly described it as a missionary system.

But don't you think that missionary efforts, if too long continued, tend to prevent the establishment of any permanent local organization; and that the lecture system having fulfilled its missionary character may now, with advantage to the public, be dropped?—Perhaps if looked upon merely in its missionary aspect it might be injudicious to continue it too long. But I have not said that this was its only or even its most important use. I have already cited abundant authority on this point, and illustrated it by the instance of Portlaw.

Suppose that one of the Science Schools was in full operation, would you then decline to give a course of lectures?—On the contrary, that would give an additional claim to occasional professorial aid, if sought for on the ground that it was desirable in order to give a fresh impulse to the school, and draw public attention more to it. Even in an established school, energy is apt, after a time, to flag, and it is well to rouse it by such means, and by an occasional visit to the class and Local Committee.

Have you no apprehension that the two would be rivals?—Certainly not; they work most harmoniously. The existence of the Committee of Lectures has not been an obstacle but an aid to the establishment of these schools. This was felt when the Department, in October, 1859, sought the aid of my Committee to introduce the system. I did not volunteer my services, but was officially asked. I have already read to you a statement from the Report of this Committee, attributing the success of the schools to the facilities afforded by their own system. That statement, made upwards of a year and a half ago, still holds true. Up to the commencement of the present session not a single science school has been started in Ireland except those that I have started; nor has a single teacher from this country availed himself of the advantages of the Science Minute except those I have stimulated and sent forward; and it is solely owing to the influence and the lever placed in my hands, by my connexion with the Committee of Lectures, that I have been able to effect this. Of course, now that the thing has been started, we may expect that teachers will gradually come forward, and, perhaps, schools be established independently of the Committee; but I would not expect many such at present. They may succeed in a few of the large towns, such as Dublin, Cork, or Belfast, where a sufficient number of operatives may be found to keep up the classes; but it is only in a few places that this would be. Even such towns as Limerick, Clonmel, and Waterford seem unable as yet to establish self-supporting schools. If you abolish the functions of this Committee, with a view to putting a pressure upon them to establish schools, the chances are that the taste for this kind of thing may be lost before they are in a position to do this, and the whole thing will die out. In considering this subject, it should be borne in mind, that the charge on the public purse is limited to the £500. It is not like a charge that is liable to indefinite annual increase.

7TH OCTOBER, 1862.

Sir ROBERT KANE, F.R.S., M.R.I.A., examined.

Museum of Irish Industry.

You are the Director of the Museum of Irish Industry?—I have been the Director of that institution from its origin.

Formation.

What is the state of the Museum, its specific character and general objects?—In its first establishment it was called the Museum of Economic Geology, as it was intended to be formed upon a plan somewhat similar to the Museum of Practical Geology in Jermyn-street, but with a wider range. There had been in operation in Ireland a trigonometrical survey, in connexion with which an examination was made into the natural history, archæology, and physical features of a portion of the country. This was conducted by Colonel Portlock, and in the course of that investigation a large collection was formed of mineralogical, geological, and natural history specimens, which were lodged in the offices of the Survey. After this examination had proceeded a certain length, the operation of the Survey was limited to the mapping of the country, and when this museum was established, the whole of the Portlock collection was transferred to it. In 1845 the Government decided upon establishing an institution somewhat upon a plan which I had suggested in a report made to the Dunraven Committee in 1842 or 1843; and this institution was placed under the Department of Woods and Forests, of which the Earl of Lincoln was the Chief Commissioner. There had then been organized in London, under Sir Henry De LaBeche, a Museum of Economic Geology: and as it was determined to recommence the Geological Survey of Ireland, and place in the new museum here the collections that would be formed during that survey, our institution received the title of the Museum of Economic Geology. But after a time when the industrial objects of the Museum became developed, I represented that the geological aspect of the institution was limited, and that a name should be given to it expressive of its more important industrial objects, as an Industrial Museum for Ireland. The Earl of Carlisle, who was then Chief Commissioner of Works, decided upon changing the name to that of the Museum of Irish Industry. It is not however, nor was it intended to be a museum limited exclusively to Irish objects, or to industrial objects.

Collections.

The geological collection includes the geological collections formed by the officers of the Geological Survey in Ireland?—In official strictness it consists of two parts I was instructed to provide accommodation for the Geological Survey of Ireland—space for offices, and space for the collection that might be formed, and to be kept during the survey. These collections are in charge of the officers of the survey; strictly speaking all that part of the Museum is in the charge of Mr. Jukes, as representative of Sir Roderick Murchison, and is operated upon by him. The Irish geological collection will represent, when completed, the geological structure and fossils of the whole of Ireland, but there is also a collection illustrative of the geological structure of Great Britain and of Europe generally. There are two further collections: one is the mineralogical collection illustrating the practical uses of minerals—such as sulphur, lime, silica—showing how they are found in nature, and how they are applied in the arts. The second is a collection of rocks to illustrate the history of the non-fossiliferous rocks, which is made use of by the Professor of Geology for the purposes of instruction. For this instruction he avails himself of all the resources of the Survey collection, but that survey being local, and there being fossils not found here, to which it is necessary to refer in the courses of instruction, we have purchased specimens from other countries, and also have enabled him to form a collection of Irish rocks, from places which the Survey has not yet reached. For the purpose of illustrating European geology, we have purchased a collection of continental igneous and metamorphic rocks from Mr. Krantz of Bonn.

Do you think it of importance that the Irish geological collection should be kept together?—I think it of great importance that local collections should be kept together, and this is the course pursued in all places where the science is thoroughly understood and cultivated. If you go to the School of Mines in Paris y u will find every department of the country represented by its rocks and minerals; there is a perfect topical collection as well as a central collection; in fact, the departmental collections are as carefully looked after in France as the central collection.

Objects.

What are the industrial objects of the institution?—To teach the scientific principles involved in the various branches of industry, the uses to which raw materials are applied, the various processes through which they pass, and, as far as possible, the actual condition of the arts and manufactures in this country, England, and elsewhere. All the specimens are arranged with this view. The lower part of the Museum is devoted to inorganic material, the upper to objects of organic nature. The lower cross gallery, entering from the hall, contains building-stones of Ireland and England, marbles, slates, and flags, specimens of clays, and materials used in making cements, and specimens showing how these are employed. From that we pass to the gallery on the right, containing the ores of copper, lead, zinc, antimony, &c., as found in nature, and specimens showing these metals in their different states of preparation, the different uses to which they are applied, the processes which they undergo, and the compounds derived from them. We then pass to the minerals; a collection which is confined to those that have practical uses; the minerals are placed on one hand, and their practical uses shown on the other. In the lower gallery, on the left, the manufacture of iron is illustrated, in the same way as the copper, lead, &c., on the other side. The iron is so associated with coal that we have separated it from the other metals, and its industrial history is exhibited along with that of coal. From the metals we pass to the application of clay and sand in the manufacture of pottery, porcelain, and glass. These are in three divisions; one exhibits the manufacture from the earliest times, the second illustrates the diversity of the manufacture in different countries, and the third shows the materials and instruments employed in the manufacture. There is also here a collection of Wedgewood ware, and pottery manufactured in Ireland. The gallery above this contains specimens illustrating the industrial applications of various vegetable fibres, such as flax, hemp, and jute, of cotton, and the various processes through which it passes. The woollen manufactures are also shown; and, in connexion with those textile industries, we have models showing the processes the thread undergoes from the time it leaves the ground, or the back of the animal, till it is converted into cloth From the fibre industries we pass to a collection of the starches and sugars, and of fatty bodies of vegetable and animal origin, and their conversion into soap and other articles of domestic economy.

Arrangement.

How far is the collection complete, and how far is it defective?—I should say that our collections of copper, lead, and iron industries are very complete. We are deficient as to the cotton industry, because we were not allowed to purchase models of the cotton-spinning machines. But there is no one department in which there is a positive glaring deficiency. There are a great number of details which it would be desirable to fill up; and in such a museum you will always have to be removing certain portions and substituting others, to keep up with the progress of the arts.

Is not such a museum open to this objection, if complete it becomes too voluminous and extensive, and if not complete it becomes obselete? —You might go wrong either by allowing it to represent obselete things, or, upon the other hand, by introducing every novelty as it appears. It is possible and practicable to keep to a judicious mean between these extremes, and represent a *bonâ fide* condition of the arts and manufactures, while the amount of change would not be very considerable. This objection applies as well to a natural history museum, in which you have to replace specimens injured and introduce new discoveries from time to time. Changes are necessary in an industrial museum, but they are not so rapid as to require the *bouleversement* of the museum every two or three years.

There are illustrations of manufacture in the Museum which scarcely form a part of Irish Industry at all, such as earthenware, glass, and iron. How are such illustrations, therefore, useful in an educational point of view? —I do not consider that in an institution of this kind, which is for the education of an integral portion of the empire, it would be desirable to limit the illustrations to what exists in Ireland at present, or what would be brought into action hereafter. That would be saying to the Irish people you may learn anything belonging to your own country, but you shall not qualify yourself to be employed in England. I would claim for the people of this country that, as we are a portion of the empire, we should not be debarred from any source of knowledge that would fit us for employment in any part of the empire; and I insist that we have as good a right to learn how to make glass or porcelain, or to manufacture iron, as the persons born at the other side of the channel; and it would be to the interest of the English manfacturers themselves that the Irish, with their quick intelligence, should be so instructed and fitted to become machinists and managers of factories generally. At the present moment many English manufacturers are obliged to employ Germans in their works as overseers and managers. This you would find to be the case upon an examination of the great works in Liverpool and Manchester; and with respect to the chemical industries, I can state, that in a large proportion of the great chemical factories in England, the managers are Germans. In consequence of the facilities afforded by the German States for instruction in chemistry, England is filled with young Germans, who possess an accurate chemical knowledge, and who, having spent some time there as managers of factories, either go back to Germany and establish factories, by means of which they compete with the English themselves, or they settle themselves in England, and compete with them on their own ground. In Manchester alone there is a great amount of this trade absorbed by the Germans.

Does this arise from the superior facilities afforded by the State in Germany for instruction in this department?—Yes. Practically, the schools in which these young Germans are taught are entirely supported by the Government. Schools supported by the Government exist in all the principal towns of Germany—at Berlin, Carlstadt, Munich, and other places.

But the great industry of Ireland is agriculture, and yet you do not teach agriculture at the Museum of Irish Industry.—The great industry of any country is its agriculture. The agricultural industry of England is more valuable than its manufacturing industry. Improvement in agricultural husbandry has always been the recognised function of the Royal Dublin Society; and neither I nor any other person connected with the Museum of Irish Industry ever thought of trenching upon the province of this Society. We, therefore, never have had anything to do with agriculture except with regard to the chemical analysis of soils, the preparation of a series of maps showing the distribution of the values of land according to the Government valuation, and the forming of agronomical maps showing the distribution of soils in two or three counties. This latter was given up, as it was found to be attended with expense and embarrassment.

Have you included in your description the whole of the collection in the Museum of Irish Industry?—There is a natural history collection of birds, fishes, and shells, made by Colonel Portlock during the progress of the Geological Survey, which properly belongs to the Royal Dublin Society, and which should be removed there as soon as the Natural History Museum is ready for their reception.

[Sir Charles Trevelyan proceeds to put a question on the subject of the consolidation of the two collections. Sir Robert Kane prefers, on personal grounds, not to express any opinion upon the subject, inasmuch as his opinion, in consequence of the peculiar circumstances, could not he expected to carry any sensible weight with the Government or the public. Sir Charles urges the necessity, in a public point of view, of having Sir Robert Kane's views upon the matter; and ultimately Sir Robert consents to give his views, upon the understanding that his position is not to be considered as affecting his opinions.]

Consolidation. Sir Charles Trevelyan.—You are aware that it has been suggested that there should be a consolidation of the Royal Dublin Society, and the Museum of Irish Industry?—I am familiar with the whole of the circumstances under which this question has been raised.

The reasons urged for this consolidation are that the collections are to a great extent similar, and relate to the same class of subjects; both have extensive geological and mineralogical collections, and by the union of the two, a more perfect collection might be made; that the apparatus and specimens of this society are used at the lectures in both institutions; that the lectures are delivered indifferently at both places; that it is easier and more economical to have and maintain one collection in an efficient state than two; and that it is easier for the public to resort to one than to two. These are the reasons for consolidation. It is then urged that the Royal Dublin Society should be the place of consolidation, because that Society is so largely supported that it forms a sort of representation of the whole country, and that whatever is connected with it is more easily diffused throughout the country than if coming from a newer and less known institution, such as the Museum of Irish Industry?

I quite admit that it is a disadvantage to have to carry the apparatus and specimens from one place to another for the purpose of the lectures, and that it is inconvenient to have one part of a course of lectures delivered here, and another part of the same course delivered at Stephen's-green; but I do not see any practical disadvantage in Professor Jukes, for instance, lecturing regularly through his whole course at one place, and Dr. Barker, for instance, lecturing through his entire course at the other place. The subjects are different and would be completed in each place, and the public could go to one as easily as to the other. With regard to the collections being allied, and therefore the necessity of having them placed in the one house, there is more of mere statement than argument in that assertion. You have a geological collection in the British Museum, and another at Jermyn-street, in London, would it be advantageous to consolidate these? I can conceive the very fine collection of minerals here existing as a scientific collection, with all its advantages of teaching the science of mineralogy, independently of the collection in the Museum of Irish Industry, arranged with a view to teaching the practical uses of minerals, just as the collections exist in Jermyn-street, and the British Museum, each having its separate object, one being a scientific museum with a purely scientific arrangement, the other being technical, and arranged entirely with a view to the practical uses of the objects. Besides you entirely confuse the scientific classification if you interpolate industrial illustrations. In one case the mineral is taken as a physical species, in the other it is taken in reference to its practical use; you *may* put them together, but in doing so you break up the scientific history by forcing in its industrial application. These separate systems of arrangement are observed in London and all continental countries:—the industrial history of the mineral, and its scientific history.

Some parts of the Museum of Irish Industry are arranged without reference to industrial uses, the geological portion for instance, might not that be advantageously amalgamated with the collection of the Royal Dublin Society?—Yes, if you brought the geological lectures with them.

Would it not add to the efficacy and completeness of the lectures, that the Professors should have easy access to the various apparatus and specimens in the possession of the Royal Dublin Society?—I believe that the Professors have always had at their disposal the resources of this Society, and that their officers have uniformly given the fullest assistance towards making the lectures as complete as possible.

The separate collections for separate objects of which you have spoken have reference to large capitals; is there the same demand for such separate collections in Dublin?—Not to the same extent, but the position of Dublin would require and entitle it to have its institutions calculated rather upon the plan of the capitals of other countries than upon that of provincial towns. The intercourse between Dublin and the provinces has been vastly facilitated of late, and Dublin is now more in the position of a *bonâ fide* capital than I believe it to have been at any time within the last half century. It is every year more and more acquiring the character of a capital, and becoming more and more entitled to the institutions of a capital.

The greater number of persons who visit museums are unaware of this division of theoretical and practical mineralogy, would not the number of visitors be increased if the two collections were joined?—Just as if Jermyn-street Museum was removed to South Kensington; the visitors at the latter place would be increased by a portion of those who would have gone to Jermyn-street.

But is it not desirable to have a museum attended by a great influx of visitors?—Persons attend museums either for learning or for the purpose of sight seeing. If for learning, you may have more instruction and a greater diffusion of information from a moderate number of persons visiting a museum and understanding what they see, than from a large number who go sight seeing. In the small and less frequented museum, people can examine the collection minutely, and pursue their studies without noise and crushing, while in a monster institution crowds collect because there is much to see, and where every thing is gathered together people do not know where to find what they want.

As a means of instruction and a place for study, I would say that a museum of moderate size is better and more intelligible than one containing very large collections of all sorts of objects. See the small number of persons who visit the Museum in Jermyn-street, and what an amount of practical usefulness it confers.

Might it not be argued that it would be useful to remove that Museum to Kensington, where its collection being exhibited to greater numbers would become more generally known?—No; that Museum is not universally known in the popular sense, but it is generally known to all classes interested in the subjects which it embraces.

The Royal Dublin Society has a constituency of 1,200 persons, including a large proportion of the intelligence and wealth of the country. The Museum of Irish Industry is comparatively unknown, whereas, if it were united with the Royal Dublin Society, this constituency would be brought into connexion with it. As the value of an institution depends on the support it receives, and the interest it creates; suppose these two united, would not this large number of persons be led at once to consider the Stephen's-green, as well as the Royal Dublin Society collection, as belonging to them, and would not that create additional interest in the Stephen's-green collection?—I should be glad of anything that would increase the importance of the Royal Dublin Society; and I quite agree that that Society, considering the position and intelligence of its members, and all it has done for the advancement of the country, is most eminently deserving of its present functions, that it has a right to the position it holds, and is capable of maintaining that position. I was for a long time a professor in the Royal Dublin Society, and had an opportunity of witnessing how zealously the members worked to carry out its objects. And I fully believe that if the amalgamation took place to-morrow the public would not lose by the change, and the country would not look upon it unfavourably. But whether that should take place or not is a question upon which I cannot express an opinion, that is a question of Government polity, The Government founded that other institution with a specific object and I was induced to take charge of it. It has not attained the popularity which might have been wished, because it had to struggle with disadvantages and hostility. Whether it is politic for the Government now to retrace its steps, and restore to the Royal Dublin Society the functions which had been handed over to the other institution, is a matter altogether for the Government itself to determine; but if these functions are handed over, I believe that the Royal Dublin Society will administer them ably and honestly, and that the position of the Society would tend to give an amount of popularity to any of its acts which the more youthful institution might be long to acquire.

Lectures.
Laboratory.

We will now go to the educational or instructional part of the subject—and first to the chemical department?—One of the objects of establishing this Institution was the carrying out of investigations connected with the Industrial Arts. Shortly before the Institution was founded, I was occupied in an investigation into the cost of power in Ireland and the actual financial condition of the principal branches of Irish industry. I embodied the information thus obtained in a series of reports.

That I suppose was the origin of the "Industrial Resources of Ireland?"—Yes; In deciding upon the establishment of the Museum of Irish Industry, Lord Lincoln said that one principal reason was, that it should be a centre and a school of instruction and research in the Industrial Arts—a School of Industry for the country; and that for some time the principal duty to be performed would be chemical investigations connected with the Arts. Consequently a laboratory was formed at once, and chemical investigations were commenced, carried on, and published. In all cases these investigations were conducted under me by an officer who was called the Chemist. Matters remained so until 1854, when professorial duties were added; up to that the laboratory was employed altogether in investigations.

That Department is now conducted by the Professor of Chemistry, under the Department of Science and Art?—The practical chemistry is conducted by Mr. Galloway, who is called the Chemist. He delivers two courses of systematic instruction in practical chemistry in the laboratory, one in the day and one in the evening. The evening classes are generally composed of artizans and persons employed in shops.

Analyses.

How far are the analyses voluntary, and how far are they ordered by the Government, or any other public body?—The Government have directed from time to time investigations of a very important character. For instance, a very long investigation was directed by them into the products of distillation from peat; another into the manufacture of peat and its products; another into the manufacture of flax and cotton; these as far as I remember at present, are the only investigations made for the public service. They were made in our laboratory, and the reports on the results were laid before Parliament. By directions of the Lord Lieutenant, upon the application of the Corporation of Dublin, three or four investigations have been made into the qualities of various waters. Several investigations have been made from time to time of the foods and waters used in different workhouses where diseases existed, supposed to have had their origin in these foods. The laboratory has been very much occupied with investigations into the compositions of various fuels, ores, and materials used in the Arts; and careful analyses having been made of these, we have been enabled to attach to the specimens in the Museum accurate descriptions of the constituents of these substances. Similarly, the substances used in dyeing and tanning have been examined, and their strength and properties determined; and to these substances, arranged in the Museum, a description has been attached by which you can read off the precise application and value of the substance in the Arts. These investigations afford abundant occupation to the Chemist.

If such investigations were not made by an officer specially retained for the purpose, would not the Government be able to select from time to time, as occasion might require, the persons most distinguished in the profession to make these analyses, and would not the employment so given give encouragement to the profession generally?—I think it would be cheaper for the Government to have an officer of their own for this purpose, than to employ from time to time a Chemist of proper position.

Would the investigations required by the Government occupy the whole time of one person?—Perhaps not the investigations directly ordered by the Government, but these, together with the investigations necessary for such a Museum as that at Stephen's-green would afford abundant occupation.

Formerly the mint had two Assayers attached to their service; now that system is changed, as it was considered better to entrust the work of assaying to private chemists?—Do they change about from one chemist to another? I was not aware of that.

Yes; the persons selected vary from time to time?—If you want a certain number of analyses made, of course you can get them made by Chemists of reputation; but that would in the end cost the Government more. The value of analysis depends upon the ability, accuracy, and conscientiousness of the person who makes it; if these be not present the analysis is worthless; and to obtain the services of a person with these qualifications a large sum must be paid for every operation. You can, of course, get the thing done another way, but, in my opinion, you can get it done better and cheaper by your own officer.

Lectures.

Describe generally the course adopted in reference to the lectures and educational arrangements?—Originally the lectures were all delivered here, and the Professors were officers of this Institution; but in 1854 the Government considered that the system of instruction should be under their own entire control, and they arranged to transfer the Professors from the charge of the Council of the Royal Dublin Society to the Board of Trade. The Professors who had been Professors of the Royal Dublin Society, were then abolished as regards that Society, and were made Professors under the Science and Art Department of the Board of Trade. Two Professors remained attached to the Dublin Society for special objects—Dr. Scouler for mineralogy, and Dr. Davy for agricultural chemistry. Mr. Jukes was then appointed Professor of Geology; Dr. Sullivan, of Chemistry; Dr. Barker, of Natural Philosophy; and Dr. Harvey, of Botany and Zoology. Dr. Harvey having gone on a natural history tour, Dr. Allman lectured in his place on the two subjects; and upon Dr. Harvey returning, he found it more convenient to lecture upon Botany alone, and the chair was divided into the chair of Botany, occupied by Dr. Harvey, and the chair of Zoology by Dr. Kinahan.

Why was it determined that the lectures should be delivered partly here and partly in the Museum of Irish Industry?—The Dublin Society were considered entitled to have delivered in this Institution the amount of public lectures that they were accustomed to have, and accordingly a Committee was appointed conjointly by the Government and the Royal Dublin Society, in whom the management of the lectures of a purely public character was vested; the management of the systematic course was confided to me. These were divided into two independent series: one to be delivered in the day calculated for *bonâ fide* students, the other in the evening suitable for the artizan class. There were then three sets of lectures: one corresponding to the old established course of popular lectures, to be delivered here in the afternoon under the Committee of Lectures; one systematic day course, in Stephen's-green, for the really student class; and one systematic evening course in the same place for the artizan class.

Is it not arranged that what is called the popular course delivered here, shall form part of the systematic evening course delivered in Stephen's-green?—Yes; that has been arranged by the Professors as a matter of convenience to themselves. For the purpose of economizing time and to enable the lectures, and consequently the examinations, to embrace the greatest possible quantity of matter, the introductory lectures have, with the concurrence of the Committee of Lectures been put in connexion with the systematic course; and thus the lecturer, in commencing at Stephen's-green, is enabled to take up the subject where it ends in the lectures here, instead of commencing anew and going over the same ground. By this means so much more additional matter is introduced, and the student is so far benefited, while the general public receive their amount of lectures as before.

Then there are three sets of lectures, one of a systematic elementary kind here, another of a systematic advanced kind at Stephen's-green in the day, and a third of a systematic kind at Stephen's-green, also suitable for the artizan class ?—Yes.

Audience.

What class of persons attend the day course here ?—That audience is a full representation of society in Dublin, the families of the members, governesses, clerks in offices, persons attending public schools, and in some cases, students of college.

What classes attend in the evening ?—The evening classes represent generally the artizan class and persons employed in shops during the day.

Artizans.

Is there in Dublin an artizan class having a taste for such studies ?—There is in Dublin a very large intelligent artizan class, and a large amount of industrial employment. There is a sort of assumption that there are no manufacturers here, and therefore no artizan class. That is a mistake. Dublin is not a manufacturing town in the sense that Manchester, or Liverpool, or Sheffield is, but there is a large amount of industrial employment in it in connexion with the foundries, distilleries, breweries, chemical works, the leather trade, and the making of textile fabrics. The Liberties, which a few years ago was a desert, the houses uninhabited and falling to ruin, is now alive with industry and active employment; in fact the revival of the manufacturing industry in Dublin of late years, is of a nature to astonish myself.

The persons attending the evening lectures are of the artizan and shop-keeping class ; are the latter in a majority ?—I think so ; they are a little ahead of the artizan class in intellectual pursuits.

Day Course.

What classes attend the day systematic course at the Museum of Irish Industry ?—The day course is never very largely attended. It is composed of persons who really propose to themselves to learn the science taught, many of whom are either employed in teaching, or propose to earn a livelihood by that employment. One portion of this audience is a number of young ladies intended to be governesses, and who by attendance on these lectures acquire a taste for and a knowledge of the sciences, which they are afterwards able to impart to their pupils, instead of confining their teaching to the limits of Music and French. This is one of the most desirable results of the whole arrangement, and is attended with benefits the importance of which it is impossible to over estimate.

Governesses.

Are any of the ladies who attend in independent circumstances ?—Practically all the ladies who attend the day systematic course are either governesses or persons preparing to be governesses. They recieve here an instruction which they could get nowhere else, and similar to that which is given in the Ladies' College in London.

Competition.

Do they compete for the prizes at the end of the lectures ?—Yes, and generally with great success. They compete with the best of the male pupils, and carry off a great number of the prizes.

Is the class of subjects taught suited to the female genius ?—The results of the examinations prove it to be so. Their greater sensitiveness and power of appreciating differences secure to them a proficiency in Zoology and Botany; but their success is not confined to those sciences. In Natural Philosophy, Chemistry, and Geology, some of the highest prizes have been taken by ladies. Last year the first premium in Chemistry would have been taken by a lady, but that she fainted in the course of the examination and was unable to continue. Her paper was examined, and it was found that up to the time she had ceased to write, her answering was of a most superior kind, and better than the answering of the person to whom the first prize was afterwards awarded.

Do persons of the upper class attend the free lectures?—The persons attending these represent the general society of Dublin—the general public.

What fees are paid for the other lectures?—They are nominal; 3*s.* 6*d.* for the day course, and 2*s.* 6*d.* for that in the evening. The fees are instituted for the purpose of testing the reality of the wish to learn; to show by a small pecuniary sacrifice that the persons attending are in earnest, and do not go for the mere purpose of passing an idle hour.

Examinations.

How are the examinations conducted?—Each Professor prepares an examination paper, which is handed to each student competing in the room in the Museum in which the examination is held; he remains in the room while the answers are written, takes up the papers, examines them and makes his report to me. In cases where over seventy-five per cent. of the questions are answered, I forward the questions and answers to London with a recommendation of the persons entitled to the prizes.

All the registered students do not present themselves for examination?—No. All the students attending these lectures enroll themselves as students by the payment of the registration fee, which entitles them to attendance at the lectures, but all do not go in for examination—only those who have a direct object in getting a certificate, which is now extensively recognised as one of the highest testimonials in favour of persons seeking employment.

There are two classes of examination—the special and the general?—Yes; the first is an examination in any one subject; the second is an examination in the whole five, Geology, Botany, Zoology, Natural Philosophy, and General Chemistry. We have arranged that any person who attends all the courses and goes in for examination upon all within two years will, if he pass that general examination, obtain a general certificate, and the person who obtains the first place gets the silver medal. In the "special" case it is an examination in *one* subject; in the "general" it is an examination in *all*, in which only those can compete who have attended all the courses.

The numbers of registered students, and the numbers competing for prizes are thus stated in your annual report of last year:—

For Professor Juke's systematic course on geology in the theatre of this institution, 46 students were registered.

At the termination of the course 11 students presented themselves for examination, of whom 10 obtained certificates of proficiency.

For Professor Sullivan's course of systematic lectures in the theatre of this institution, 35 registered pupils were entered. At the examination closing the course seven students competed, of whom four received certificates.

For Professor Barker's course on natural philosophy in the theatre of the Royal Dublin Society, and the second portion of that course, in the theatre of this institution, 28 registered students were entered, of whom 11 competed at the final examination, and seven received certificates.

For Professor Harvey's systematic course of 20 lectures in the theatre of the Royal Dublin Society and Botanic Gardens, Glasnevin, nine registered students entered, of whom seven competed for prizes at the final examination and received certificates of proficiency.

For Professor Kinahan's public course of 12 lectures on zoology in the theatre of the Royal Dublin Society, and his systematic course of 15 lectures in the theatre of this institution in continuation and completion of the former, 16 registered students were entered, of whom 10 competed at the closing examination and received certificates.

May that be considered about the average number?—I think it may.

Are the examinations upon the science generally, or only upon the points referred to by the Professor?—Upon the science generally.

Professor Kinahan examined both in his twelve lectures here and his lectures in the Museum of Irish Industry: why are the latter only called systematic ?—We always call the courses at Stephen's-green the systematic courses. His course in that case was a continuous course, taking up the subject at Stephen's-green, where it dropped at the Royal Dublin Society.

Dr. Kinahan also, I find, conducted a class of practical zoology—what is the nature of that?—He has a room in the Museum, where he assembles a special class for the dissection of the smaller animals, and examining with the microscope the muscular tissues, fatty and bony substances, &c., and thus teaching physiological and structural zoology.

The pupils examined, then, do not include the general audience of the Royal Dublin Society, nor the artizans and persons employed in shops ?—The examination is confined to the registered pupils from among the general audience of the Royal Dublin Society ; the persons attending the systematic day courses and those attending the systematic night courses. In the latter the artizans and persons employed in shops are included. There are two distinct series of systematic lectures, one in the day and one in the evening.

Is there an examination after the evening course as well as the day course ?—Yes ; one subject is treated either altogether in the day or altogether in the evening.

Are not all the evening lectures free ?—No ; some are free, others are paid for.

Audience.

Besides the ladies of whom you spoke, what class of persons attend the day lectures ?—I think they are chiefly young men who are preparing themselves for some industrial employment ; persons from offices, and persons who are getting their education elsewhere.

They do not belong to the lower class ?—No ; the free day lectures are attended by a great number of young lads from schools, and I think it is one of the great advantages of the day lectures here that they impart to the schoolboy a taste for science, and direct his mind towards the acquirement of scientific knowledge.

Are the day lectures at the Museum of Irish Industry attended by that class ?—No ; the fee of 3*s*. 6*d*. keeps them out. They attend here because the lectures are free ; they come out of curiosity, and because there is no impediment in the way ; and many a boy's course in after-life has been bent to industry or science in consequence of his having accidentally come in upon a lecture here.

If this scientific knowledge was appreciated by the parents, would they not pay for the admission of their children to the other lectures ?—It is one thing for a boy to attend of his own accord, and another to bind him to attend after he has spent his day at school. I think if he were made to attend, he would not be disposed to do so. That is a course I would not recommend.

The higher classes do not attend the paid lectures in the day ?—No ; these are attended by the middle classes, who are preparing for industrial occupations.

Do students of College, or persons going in for competitive examinations attend them ?—We have instances of their being attended by persons preparing for the Indian and Woolwich examinations ; but I always considered that these were of a class above that for which this instruction was intended, and that such young men might be expected to obtain their education at College.

Examination.

Do you consider that the proportion who go up for examination is a fair one as compared with those who attend ?—It is as large a proportion as you would find anywhere in cases where the examination is voluntary.

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In your last report it is stated, that "at the close of the session in June the general examination in natural philosophy, geology, botany, zoology, and general chemistry was held, three students competed, and the answering of all was satisfactory. The first place was gained by Mr. John Elliott, to whom the silver medal of the Department was awarded." Is three as many as might be expected to compete under these circumstances?—That was an unprecedentedly low number, the number is frequently seven and eight. But that examination is extremely difficult; it embraces the whole five sciences. The questions are of a very high standard, and I would say that very few indeed of the University students would pass that examination. One of our students who took the silver medal at a general examination (Mr. Dowling), and who was a very humble clerk in an establishment in Dublin, is now a first grade certificated teacher in Cork, under the Committee of Council. Another who obtained a general certificate, is now employed in the large establishment of the Messrs. Richardson, at Lisburn; and others who have passed the test of this examination, have been equally successful.

Nature of teaching.

Give a general idea of how far the scientific instruction is of a general kind, and how far technical. Take chemistry. Do you consider it necessary to qualify a person for the application of chemistry to the arts, that he should learn a course of scientific or abstract chemistry?—Most unquestionably. You must have a science soundly taught in its scientific principles, before you attempt to apply it at all. It is a great mistake, indeed, to suppose that the application of a science to industry is something of a lower standard than the knowledge of the abstract science itself. The contrary is rather the fact, because the problems to be solved in industrial science, are more complex than those in the abstract science. Hence, unless the first principles of the science are taught with extreme care, you would break down when you came to make the application.

But may not too much time be devoted to the general science, and too little to its industrial application?—A great deal must depend on, and be left to, the individual Professor. You could not lay down any absolute rule, that a Professor should spend so much time upon the scientific part, and so much upon the application.

But the greater part of the time is given to general scientific instruction?—I would say that the greater part is employed in industrial application. Take Chemistry. The industrial goes *pari passu* with the scientific—the two things are to a great extent interwoven; but you must know the science in its abstract form before you proceed to apply it to industry.

Then before you proceed to teach the practical application of Chemistry, you must take the pupil through a regular course of Chemistry from the commencement?—Yes, and the higher the knowledge of the abstract science is, the more it is capable of being advantageously applied to industry.

Preliminary knowledge.

You do not require any preliminary standard of knowledge before admitting persons to your systematic course of instruction?—No. It would be most desirable that we could insist upon a preliminary standard, but we cannot do so, as we have not the power to confer a diploma.

In a recent report upon the Jermyn-street School, it has been recommended that all students before admission shall pass a certain preliminary examination. Would you recommend that the same principle should be applied to your School of Science?—I would. I think it is the correct principle; but I would confine the examination to subjects bearing on industrial interest and industrial application. I would recommend that such an educational preliminary training should be insisted upon as one element in the reconstruction of the school, so as to make it a really industrial school; and I would give the student a diploma upon his passing successfully through his course afterwards. Although we have not at present any entrance examination, I have made certain recommendations to students about the preliminary studies, absolutely necessary to enable them to derive any material advantage from the systematic courses in the various sciences. These recommendations you will find in the Programme of Educational Arrangements for the Museum of Irish Industry.

The object of the Institution is not to give *general*, but practical instruction in particular sciences?—I would say that the object of the Institution was to teach all these sciences as applied to industry. If the general science is not taught either here or elsewhere, the application of the science cannot be taught.

The primary object is to teach the application of Science to the Arts?—Yes; but as the case stands at present, in order to teach the application we must teach the science. If the persons who offered themselves as students were already acquainted with the principles of the sciences, so that they could at once pass to the application, we would bring them at once to the application, and a great deal of time would be saved. The science must be learned somewhere; if in our Institution, the course would occupy a longer time than if taught elsewhere, and if taught elsewhere, our teaching would be confined to the application of the Science to the Arts.

Is the class of persons in Dublin ready to avail themselves of this instruction as numerous, in proportion to the population, as in the towns in England—say Liverpool, for example?—I should say it is. We have a more general wish to acquire education, and there is a much greater taste in Dublin now for industrial pursuits than there was.

Take any other town in Ireland—Cork or Belfast—how are they in comparison with towns in England?—Belfast is as active in this respect as any place in England of the same population, and Cork has shown itself by no means indifferent to its educational wants, or the means of supplying them.

Generally, are there many towns in Ireland in which there is as much intellectual activity as compared with towns in England?—I should say the intellectual activity in the towns in Ireland, as compared with those in England, is much greater.

You state that a considerable number of the persons attending the lectures at the Royal Dublin Society are of the respectable classes, is a similar public provision made for the instruction in science of these classes in other parts of the United Kingdom?—I am not aware of the educational arrangements in England; but I think if such provision were made it would have a very beneficial effect.

Supposing that no such public provision is made for the scientific education of the middle and upper classes in other parts of the United Kingdom, what special reason exists for it here?—It has almost become one of the principal institutions of the country; it has operated beneficially upon the tastes and tone of society; it has directed to the pursuit of science persons to whom, but for this provision, science would have been always sealed; and its whole results would make it extremely undesirable that it should be discontinued. This system exists in all continental countries. In Paris, the lectures, in the College de France, the Sorbonne, and other places, are all free to the public.

Do not the students pay fees at these lectures?—Yes; but so far as attendance upon the lectures, they are to all intents open to the public.

The lectures are read for the benefit of the registered students, and the public are admitted to hear them. Here the lectures are provided at the expense of the State for the public. By that means you provide for the scientific education of persons who should pay for it if they value it?—Practically it is not so. You provide for the education of the industrial classes, but you admit to a portion of the course the general public free. The public have thus the benefit of this course, while if they were shut out, the student class would be no better by the change.

Middle Class.

Is not the day course attended by the middle class, and are not they persons who should provide instruction in science for themselves?—It may be said that persons of the middle class should pay for being taught industrial science, and that the State should make no provision for it. I think that is not entirely sound. Looking to the benefit the State is to derive from the industrial occupation of the people here, I think it is politic and prudent on the part of the State to diffuse and develop a taste for industrial pursuits. Any thing that tends to direct the popular mind here to subjects of practical value, confers a benefit on the State. It is considered that our people have too great a tendency to abstract reasonings and speculations which keeps them from industrial pursuits, and has contributed to a very unsatisfactory social state. In England the tendency is rather too much to the practical, in Ireland it is too little so; and I think the best laid out money that could be is that which would afford the means of creating, in this country, a greater tendency to industrial pursuits. You have here a surprising amount of intelligence and capacity for learning, and it is every day increasing. The result of the competitive examinations shows the amount of intellectual force that there is in the country, and it would be the best thing that could happen if a greater number of Irish, qualified by industrial knowledge, would go to England, and become mixed up in her industrial occupations.

Private Education.

Is it not a fact that this system of instruction by the State interferes with private enterprise, and prevents persons from entering the field as teachers who would be otherwise available for scientific instruction?—I do not think it interferes with any thing or any body. Not with the University—it has its own studies with which this institution could not occupy itself, and there are reasons why the University should not occupy itself with any thing but the learned professions. And as to the establishment of private schools to afford such instruction, I do not think it is within the bounds of reason to hope that industrial scientific institutions will grow up by private enterprise, because the tendencies that would form them is undeveloped. And if you look to England you will find that such institutions have not formed themselves, or that if formed, have not been maintained. There was a school of civil engineering, for instance, established at Putney, and an agricultural college at Cirencester, but they were maintained only for a few years.

Captain DONNELLY.—That latter school is still in existence?—I thought it was altogether given up, but I know it has been in a very languishing condition. The progress made in England by such attempts does not justify a hope that any success whatever would be attendant on such an effort here. I do not think that there is a basis either in the wealth of the country, or in the existence of a well established sense of the want of such instruction, for the establishment of such institutions by private enterprize.

So long as such a system exists, is it possible that even such a man as Professor Faraday could attempt to give lectures, depending upon public support?—Why not?

Suppose an able man wanted to lecture, could he hope to compete with one supported by the state, to whose lectures admission was free?—So far as the lectures are concerned, of course the public would not pay for lectures upon any subject when they could get these lectures without payment. The free lectures here are those which give a spur and stimulus to the study of science. No one will suppose that a man will learn a science in the twelve lectures which are thus accessible; but by these lectures the minds of many are directed to the subject and are led to a careful study of it. The free lectures give the necessary stimulus, and it is really impossible to measure the extent to which they have bent the public mind towards the acquisition of scientific knowledge. Some years ago I was in London, and met Dr. Playfair as he was going to inspect a navigation school at Greenwich Hospital; he asked me to accompany him, which I most willingly did. The examination of the boys having concluded, the head master came up to me and said, "Dr. Kane, you do not know me, but I know you well, and for good reason. If it was not for you I would not be in the position which I now occupy. I was a schoolboy in Dublin some years ago, and was one day brought by one of my school-fellows to listen to a lecture of yours at the Dublin Society. I took such an interest in the subject that I never after lost a lecture. I applied myself to my studies and afterwards came over to England. I got a situation as assistant in a school; from that worked up to be head master here; and I owe that to the accidental circumstance of my having gone to hear a lecture of yours." That, gentlemen, was Mr. Hughes, who has written so many clever educational works.

Do you think it possible that private individuals will be got to set up schools for scientific instruction, so long as the state provides this scientific instruction?—I do not think that in Dublin there would be the possibility of replacing this instruction by private instruction. I know pretty well the scientific position of Dublin; and in my opinion you would not have the slightest possible chance of replacing such instruction as is given in the Museum of Irish Industry by private interprize for fifty years to come. The abolition of this instruction would be the abolition of industrial scientific instruction in Ireland for fifty years to come.

Science Schools.

The science examinations of the Committee of Council prove that the public with only slight stimulus provide instruction in science for themselves. In the face of the present system is it likely that they will be induced to provide instruction for themselves?—There are two kinds of instruction—the preliminary and the higher kind. Co-existent with the present system the public may possibly procure preliminary scientific instruction for themselves; but I do not see how it would be in their power at all to procure the higher instruction, except by the present system. That can only be imparted by men of acknowledged position and high ability, who would not descend to the situation of teachers in science schools. There is the same relation between a science school and the Museum of Irish Industry as between one of the National Schools and one of the Queen's Colleges. The Museum of Irish Industry is a school of the higher order—the science schools are in the position of primary schools.

Results.

Under the science minute public aid is given to scientific instruction by payment on results. Under the present system here public aid is given without reference to results—which is the most certain and effectual system?—What is your definition of "results?"

Under the Science Minute the teacher receives a certain sum for every student instructed by him who passes an examination?—That is a rule which I acknowledge has its advantages in reference to primary schools, and is calculated to secure the obtaining of value from the teacher in such schools; but if you apply that to superior instruction, and as a measure of the amount of good accomplished by that, you apply a rule which is utterly incommensurate, because it is unable to grasp at the result. The fact of an individual passing, or not passing, an examination, is a very small element in the consideration of results produced by the higher order of teaching. If you were to pay Dr. Hoffman so much a head for every student he passed, and that he pass sixty students one year, and thirty another, would these results be respectively the measure of his worth? Where would be his labours in the Laboratory? where the value of his abstract researches? Why, his discovery of the analine compounds alone has been worth millions to the country; and all that escapes the dogmatic measure by results. All the great triumphs of science have been independent of such a measure. Who would pay Watt for his results, or Arkwright for his? No money could pay them, for their results are immeasurable. And thus, though this may be a good measure of utility in primary or science schools, it is utterly inadequate to express the real ground upon which the services of professors, such as we have in this institution, are to be measured.

Setting aside Professors such as these, you admit that the payment on results has some advantages?—I admit that such a principle is advantageous in primary schools, but I do not consider it at all applicable to scientific instruction of a higher order.

The plan of paying by results is more certain: by it the public money is sure to be well spent; and it, perhaps, also conduces to raise up a class of teachers?—It certainly tends to raise up a class of teachers.

Is it not free from the objection of producing a Government monopoly, inasmuch as payments are made according to results whoever the persons may be, and however they may have got their education?—I think it is a valid and definite measure of the work done by an ordinary teacher.

Is it not a peculiar feature of this system, that though it involves Government interference it does not check private enterprize?—I think it is not peculiar in that respect.

Lord Justice Blackburne.—Do you think your system of instruction is a bar to education being carried on by private individuals? Does it prevent private individuals establishing educational institutions?—Practically, not in the slightest degree. I do not think that the education carried out by us prevents in the slightest degree the organization of any educational institution by private enterprize.

Do you think it thwarts or encourages education by others?—It certainly encourages such education.

Is it not a fact, that by your system of lectures people are led to acquire a knowledge of the value of that kind of information, and acquire a taste for its possession?—Such is the fact.

Sir C. Trevelyan.—Is the establishment of a system of payment by results compatible with the existence of a system supported entirely by the Government?—Perfectly compatible. I do not think that the institution of Science Schools would interfere with the functions of the Museum of Irish Industry, or *vice versa*. I think that the establishment of such schools would facilitate the action of our Professors by supplying them with a class of students that would be better prepared to receive their instructions. Our Professors would then be much more able to proceed with the systematic teaching, if in place of a comparatively uninformed body of pupils they commenced to deal with those who had obtained the necessary rudimentary knowledge in a Science School. The two institutions would thus assist each other—the Science Schools supplying the material to be worked upon by the superior education in our institution. I should be glad to see that we could base our instruction on an entrance course which the students might obtain in these Science Schools.

Generally, so long as instruction is given gratuitously, it would interfere with private schools established under the Minute?—Supposing a Science School established in Dublin, you might deem it necessary to replace the nominal fees by *bonâ fide* fees, and that would take this higher system out of the way of interfering with the Science Schools.

You would then require a standard at entrance?—Yes; and the material for that could be learned in the primary Science Schools. I would be very glad that the whole educational system was rendered more positive, connected, and regular; that it should be followed step by step; that the examination should be compulsory; and that at the end of the course the student should receive a diploma in any of the great divisions of industrial science. This is what takes place in Paris, Belgium, and almost all the capitals of Germany; and in this country the want of such a system is illustrated by the fact that these foreigners, when they get their diploma, have no difficulty in obtaining employment in the manufacturing districts in the North of England. I think it very desirable that the natives of Ireland should be placed by their Government in the same position as the inhabitants of Germany are by theirs. I consider it would be sound public policy to do so; for the fostering of such a system of education would tend to wean this country from other unconciliatory subjects, and direct the minds of the people to the acquisition of knowledge of a permanently useful and industrial character. I think the mere money questions of whether you spend £100 more or less, or whether you can get it done a little cheaper in one way than in another, are quite subordinate to the important questions of public policy that are involved in dealing with this country.

Do you not think that the system of payment by results is the most conducive to the natural self-supporting growth of scientific knowledge, and the increase in the number of independent scientific teachers?—I would draw a distinction between the teacher of a primary school and the Professor teaching the higher science. In the teacher of a primary school, this system is, no doubt, calculated to secure a certain value for the money expended, and to raise up teachers of that class; but the Professor is a man of high attainments, character, and position, and it would be unworthy of him to be made dependent upon the number and success of his pupils; at the same time, I think that a moderate fixed salary, supplemented by fees for results, would combine the good of both systems. Thus the Professor would, on the one hand, be independent of his pupils, and on the other, have a direct interest in their success.

Lord Justice.—Do you think the Professors of the Science and Art Department would consider it unworthy to accept the position of Science School teachers according to the present system?—I do; so far as I am able to judge.

Captain Donnelly.—Yet we have men of eminence who do not consider the position of a Science School teacher unworthy of their acceptance. There are Dr. Robert Beveridge and Professor Brazier, of Aberdeen; Dr. Collingwood, of Liverpool; and Dr. Penny, of the

Andersonian University, Glasgow; all teachers of Science Schools, under the Science Minute?—I can easily understand how Professor Penny might be induced to accept this position in a gigantic institution, such as that of Glasgow. I do not know anything of the others; but I do not see that there is in this any argument at all for abolishing the higher system, because a few gentlemen of eminence choose to descend to the lower grade; besides this may not be a permanent descent. Professor Faraday, the other day, delivered a course of lectures to children upon a candle; but this descent did not at all involve his becoming a permanent teacher of children, or his giving up the high investigations in science that are so eminently useful to the country.

Is there any other observation you think it necessary to make?—There is one point in connexion with the introduction of the Science Schools which I think it would be wrong to omit, and that is, that you should consider how far this system would interfere with the National system of education in this country. This, as I understand it, is a denominational system, and therefore antagonistic to the National system.

In what sense is it denominational?—All its arrangements are denominational.

Not at all.

Captain DONNELLY.—The Department knows nothing upon the subject of religion at all; aid is given to schools of all religions, or no religion. There are several of the Birbeck schools under the Science Minute?—I am glad to have myself corrected upon the point. The difficulty I felt is so far removed.

8TH OCTOBER, 1862.

E. SENIOR, esq., examined.

Constitution of Council.

I am a Life Member of the Royal Dublin Society, and a Member of the Council of that Society. I am a Member of the Committee appointed by the Council to consider the relations of the Society with the Government. I am aware that funds are granted annually by Parliament for the purposes of the Society. I am also aware that further sums are required for the purpose of placing the several departments of the Society in a satisfactory state. In order to justify the Government in entrusting the Society with these large sums, it is in my opinion necessary that there should be an organ of the Society upon the consistency and permanency of whose decisions reliance can be placed. The Committee appointed by the Council to propose a plan for meeting this exigency have expressed their views as follows:—the report has not yet been submitted to the Society, but it may be considered conclusive so far as it represents the views of the Council.

"Having thus gone into a short sketch of the origin and gradual growth of the Society, we have now to call the Council's attention to the important intimation, that the Treasury are of opinion that, from certain facts which have come before them, the executive body of this Society (the Council) does not possess adequate control over the general management of the affairs of the Society, and in particular over its officers; and that, to insure full security for the proper appropriation of the Parliamentary Grant, the powers of the Council in these respects should be enlarged. On this point your Committee have to observe, that it is clearly essential to the well-being of the Society that the relations between the Government and the Society should be harmonious; and, looking to all the facts of the case, and the analogy between this Society and other large public bodies, your Committee are not prepared to dispute the ground taken up by the Treasury; and they would recom-

> mend that the Council take it into consideration to suggest to the Society such a modification of the Charter and By-laws as will delegate to the Council the general management of the Society, and give them exclusive control over its paid officers and servants, including the power of appointing and dismissing them, as well as that of regulating their duties. Such a change might render desirable some alteration, so as to cause the action of the Society at large in relation to the Council to be more immediate and direct, and render the Council to a still larger extent than at present the exponent of the opinion of the body at large.
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> "With this view the Committee would recommend the following modifications in the constitution of the Council and Committees. The Society to elect fourteen members of Council (instead of nine, as at present), of whom five should retire each year, and be ineligible for re-election that year. That the number of standing Committees should be reduced from eight to seven, by amalgamating the Natural Philosophy and Chemistry Committees. That each Committee should elect a Chairman and Vice-Chairman; and that such Chairman, or in his absence the Vice-Chairman, should have a seat on Council, which would thus consist of fourteen members elected directly by the Society; seven returned by the Committees; seven Vice-Presidents; and two Honorary Secretaries—in all thirty members.
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> "The restriction which prevents the same persons being elected on the Council and Committees should be removed, so that the election for both might be held at the December meeting, and the new Council would come into office on the 1st of January. Many practical inconveniences which are at present felt would thus be removed, and the code of by-laws much simplified. And as the members of Council directly returned by the Society at large would outnumber those sent up by the Committees, in the proportion of two to one, the opinions of the members generally could not fail to be fairly represented, and to carry their adequate weight in the Council."

At present the Council consists of thirty-five members. The Committees are elected by the Society at large, and each Committee elects one representative to the Council besides the Chairman of the Committee. At present any decision of the Council may be set aside by a vote of the general Society. That right of rejection is occasionally exercised by the Society—in a late instance it was so, when an officer of the Society was required to resign by the Council; he appealed to the Society at large; and they did not support the views of the Council.

Reasons for change.

I believe that the absence of exclusive control in the Council over its officers and servants, and of the power of appointing and dismissing them, tends very much to impair the authority of the Council. It is proposed by the Committee to substitute for this a more full and direct action on the part of the Society in the election of the Council, and to give to the Council the exclusive control and management of the affairs of the Society. All large bodies must have an executive with adequate and sufficient powers—a central and executive authority, able to act immediately, and without the delay of consulting the members at large of which the body is composed. Supposing that this alteration is made, the Society at large would still retain considerable powers, and in fact would do through a delegation that which they do at present in the mass. I believe that the Council of the Royal Agricultural Society is constituted with all these full powers. I think it is absolutely necessary for the effectual working of this Society that its Council should be so constituted—the Society has outgrown its original plan—much more has been put upon it than was originally contemplated—and it is now essential to its effectual operation that a more powerful central agency than was originally designed should be called into existence. I am aware of the nature of the collections in the Museum of the Royal Dublin Society and the Museum of Irish Industry. No doubt, whatever, exists in my mind of the desirability of amalgamating the two collections, both on the ground of public utility and economy. Thus concentrated they would be more useful, and their contents more available; while the cost of management would be considerably less. One public museum is quite sufficient to meet the wants of the

Consolidation.

city of Dublin, the radius of the city being so small. The two united would be much more complete in its various departments, and much more effective as a medium of instruction than in their separate and less perfect condition. The place of concentration, I consider, should be the Dublin Society. It is a larger body; it is an older body; it is more numerous and influential; its members and its influence extend throughout the whole of Ireland. I regret that its utility has been cramped for want of funds. Our Museum is at present useless to the public; its contents are hidden from view, while the rooms now available for the Library connot be converted to their purpose for want of the necessary fittings. I consider that very much less than the sum given to both this Society and the Museum of Irish Industry would suffice for effectually maintaining one very efficient institution of this nature in Dublin, and that one institution would satisfy all the wants of such a nature that exist in the city.

GILBERT SANDERS, esq., examined.

I am a Member of the Council of the Royal Dublin Society. I am aware that there is a sum voted by Parliament to this Society for its purposes, and that further sums are required to place the various departments of the Society upon a more effective and satisfactory footing. In order to justify the Government in entrusting the Society with the disbursement of these large sums, it is in my opinion necessary that there should be in the Society an organ or delegated body, upon the consistency and permanency of whose decisions the Government can rely. The decisions of the Council as at present constituted may be set aside at and by a general meeting of the Society—at least, the Society feel that no act of the Council is valid without the confirmation of a general meeting of the Society. The power of abrogation exists, and may at any time be exercised. In order to place the Council in a position to communicate with the Government, it is in my opinion necessary that the decision of the Council should not be capable of being reversed. I believe that the Society cannot be well governed, or its affairs well administered, unless the Council has fuller powers than it has at present. The cases are not numerous in which the Society has exercised this right of over-ruling the decision of the Council. I would propose that the Society at large should give up the power of over-ruling the decision of the Council, and that the Society instead of that should be more fully represented at the Council; the Society thus acting by means of a delegation instead of another mode of control. I think that for the efficiency of the Society for the duties it has to discharge, the Council fully and freely elected by the whole body should have the power to carry out its own decisions without any after interference of the Society at large. This is a constitution which is necessary to the effectual working of the Society, and is one which exists in almost all great public bodies. It is the constitution of all railway and joint-stock companies; in these the executive body is always vested with full and final power, and the control of the individual members is the control of election. I think that the Council of this Society should have the same powers as the Board of Directors possess in all joint-stock companies. I feel that it is for the best interests of the Society that the Council should be vested with full powers; and these views I would support as a Member of the Society, and not because I happen

Change in Council.

to be a Member of the Council. Such a change as this having been effected, the position of a Member of the Council would unquestionably be one of considerable weight and authority. Such a constitution of the Council would unquestionably lead to greater care being taken in the selection of that body. It would give greater force also to the decisions of the Society itself. The knowledge that the Council would have more power would make the Society be more careful in the selection of its members. They would see that the most active, intelligent, and trustworthy of its members were selected for this important office. Upon referring to the report of the Committee appointed to review the correspondence between the Government and the Dublin Society, I see it is proposed that five of the Council should retire each year, and be ineligible for re-election that year. I do not agree with the proposition that these should be ineligible for re-election. I know that that has not worked well in other societies, because by that system you take away probably some of the best men; and once a man is removed from such a position, he is often unwilling to come back when he becomes eligible, because in the meantime his ideas have been carried into another channel. It has been found in the Royal Irish Academy, the Geological Society, and other societies, that they could not carry on their business if this principle of ineligibility was carried out; in fact, the most efficient would be deprived of the power of giving to the Society the benefit of their knowledge and experience. I propose, therefore, as the result of my experience, that a certain proportion of the Members of Council should retire each year, but that they might be put forward again as candidates, together with any others that might be proposed. In all other respects I approve of the propositions made by the Committee appointed to review the correspondence between the Society and the Government. The election of the Council should be as free and open as possible; and once elected, their acts should not be subject to reversal. I believe that by that arrangement the Society would gain in efficiency especially by the satisfactory position in which it would be placed in relation to the Government, because it is necessary that the Government should be satisfied that in dealing with the Council it is dealing with a body having full powers in itself for action and decision; and this is more especially necessary if the sphere of the Society is enlarged. I should say that this constitution of the Council is absolutely necessary for the well-being of the Society. I am certain that if the Council possessed that power, the very unpleasant circumstances that have occurred in the Society would never have taken place. I would never deprive the Society of its proper influence over the Council, but I think that perfect freedom of election to the Council would secure that proper influence.

Collection in Museums.

I am aware of the nature of the collections in the Museum of Irish Industry and in the Royal Dublin Society. The general nature and object of both collections are similar to some extent, but not absolutely. I have regarded the Museum of the Royal Dublin Society as a Natural History Museum, and the Museum at Stephen's-green as more illustrative of the Arts and Manufactures, and I often thought that the Royal Dublin Society did not keep that in view so much as it should, seeing that the Society is established for the promotion of Arts and Manufactures. I think that that part of the collection at Stephen's-green would be most useful to this Museum. The rest of the collection at Stephen's-green is mineralogical and geological—the latter I think is the most complete and valuable. I am of opinion that it would be most desirable to amalgamate both institutions. This is an opinion

Amalgamation.

which I have always entertained, and so far as my intercourse with the members has been, I never knew a dissentient from this opinion. I am of opinion that one public Museum is sufficient to meet the wants of the city of Dublin, and that one would be more likely to be maintained in a perfect state than two. I am of opinion that the concentration should take place in the Royal Dublin Society and not in Stephen's-green, because this institution offers greater advantages—greater scope—the public have always looked upon it as a Society teaching Mineralogy—the public mind is bent towards it—it is felt to be more open—and its members are of great influence, and ramify throughout the whole country, and in consequence of this extensive constituency a collection under the care and management of such a Society is more likely to attract general attention. When I came to this country, thirty years ago, I felt, upon examination, that this was one of the best institutions I had anywhere met. I experienced the utmost freedom of access to the various objects contained within it, and every facility was afforded to me for examination, analysis, and comparison, and from the Professors, particularly from the late Professor of Chemistry, Mr. Davy, I received much valuable advice and assistance. The blending of the two collections, placing both in charge of the Royal Dublin Society, would be unquestionably to the public advantage; because from the constitution of the Society the members are capable of extending very much the utility of such a collection. I am aware that mining has extended very much throughout the country of late years, and consequently the knowledge of mineralogy is now more important than ever. I should be glad to see the various minor scientific societies affiliated with, without being absorbed in, the Royal Dublin Society; and I hope yet to see these various societies meeting here in the same way as similar societies meet in Burlington House.

Cattle show. I am aware of the arrangements that have been proposed to provide for the Agricultural Shows in future, namely, that the Royal Dublin Society should provide permanent accommodation for these shows, and all permanent aid, such as curators and other assistants, but that they should not be at any part of the expense of the prizes. I quite agree in the propriety of that course so far as the provision of the permanent accommodation is concerned, but I think the prizes should be provided by the Royal Dublin Society. Hitherto a very large source of expenditure has been the erection of sheds—that used to cost the Society between £400 and £500. That expenditure will be unnecessary in the future, in consequence of the erection of the Agricultural Hall, and this permanent building will also be the means of securing a better attendance during the shows in the event of unfavourable weather. I think that, with the advantage of the permanent buildings, the receipts at the doors would cover the annual expenditure. I do not think that the Royal Agricultural Improvement Society of Ireland would be likely to advance the money necessary for the prizes, unless they had the entire control over and management of the show. The permanent accommodation would secure a larger amount of contributions to the exhibition, and a larger amount of visitors by the security afforded against the effects of bad weather. We shall thus gain upon the sums received for admission, and also by the diminution of expenditure; and, therefore, I think it is desirable that the prizes should be supplied by the Committee of the Royal Dublin Society. Supposing the prizes given as at present, I think that taking into account the improved accommodation, and the probable increase in the number of visitors resulting from that, the expense of affording this improved accommodation will be defrayed out of the receipts at the shows. The sums required for the shows are made up of the small sum allocated to the Agricultural Committee, supplemented by the exhibition and entrance fees, out of the total of which the prizes are provided. I look upon the non-return of the outlay upon some of the shows which we have had as a matter of very minor importance; the real result, however the financial question may be, being the competition stimulated, and the vast good effected through the country by the diffusion of such an amount of first-class animals and improved machinery which would be otherwise unavailable.

MR. ANDREW CORRIGAN, examined.

Agricultural Museum.

I am the Curator of the Agricultural Museum of the Royal Dublin Society.

Object.

The object of this Museum is to direct the attention of those interested in husbandry to the development of the agricultural resources of the country, by the exhibition of models of improved implements and machines calculated to abridge labour and increase produce, and by its collection of cereals and vegetable products to show those substances that are best suited to the peculiar circumstances of Ireland.

Contents.

Its contents have been consulted largely by persons engaged in agricultural pursuits; it has exercised by its teaching a very beneficial influence over husbandry generally, and has been the means of spreading through the country a number of improved implements which would have been otherwise unknown. About twenty years ago the Museum contained but comparatively few inventions, most of them rude appliances; the contents have since continued to increase steadily, and now exhibit the most perfect collection of models of improved machines and implements, cereals, seeds, and vegetable products, well calculated to render familiar a highly improved state of rural economy.

Value.

Of its value in an agricultural country like Ireland no doubt can be entertained; and as a proof of its being appreciated, I may state that during six months of last year it was visited by over 14,000 persons. Drawings and illustrations are being every day taken from the objects exhibited.

The recent discoveries of science and improved mechanical appliances have led to the most important results in agriculture, which is now no longer a mere mechanical art, but a science; and this Museum is made the medium of communicating to the public the knowledge of many of the most important results of scientific research and useful mechanical contrivances connected with the advancement of agriculture.

Donations.

The collection of models, machines, and implements has been altogether formed by donations—there is not in the Museum a single instance of a purchase. Amongst these donations I would refer to valuable models of steadings suited to farms of various sizes; collections of rocks and soils showing the gradual formation of soils from the disintegration of rocks; and models of threshing and reaping machines, of considerable value, contributed by eminent firms.

The Professor of Agricultural Chemistry has from time to time analysed different soils, manures, &c., for the Museum, and is at present engaged in making for it a collection to illustrate the proximate constituents of some of our most important articles of food, which will be highly instructive.

Suggestions.

To put the Museum in a perfectly satisfactory condition, I would recommend that additional light be given to the basement story, improved flooring in the galleries, and a communication formed between them and the Agricultural Hall, in order to afford the public an easier and more agreeable access to the upper room of the Museum, especially during the Society's Exhibitions, when the present doors in the basement are necessarily closed. Additional illustrations and tables of analyses should also be solicited from the Department of Science and Art, would greatly improve the general interest and educational character of the Museum. So much confidence have the gentry in the value of this department, that many, before purchasing new implements, consult us as to their value.

Implements.

The implement department at the shows is highly creditable, and found to be exceedingly useful to the country. Manufacturers exhibit largely, their implements are purchased very extensively, and are thus widely diffused throughout the country. In the exhibition of 1860, £16,800 worth of machinery was shown in motion upon the lawn. The necessity for improved machinery and implements is becoming every day more generally felt, in consequence of the growing scarcity of labour, the nature of the soil, the facilities for transport, and the uncertainty of the weather. The sorts of machinery now most useful and necessary are portable steam-engines and threshing machines, which facilitate the preparation of grain for market—an object of great importance considering the facility with which a knowledge of the fluctuations of that produce reaches every portion of the kingdom. Reaping, mowing, and hay-making machinery are also of great importance, enabling the farmer to cut his cereals with economy, and save his hay with despatch—a matter of considerable moment in a climate where the moisture is so abundant and the herbage so rank. Generally speaking, the farmer must now resort to machinery to save his produce; it is become an occupation in various parts of the country to keep threshing and other machines for hire; and the manufacturers are beginning to provide a class of machinery suited to the wants of the small farmer. We have also on exhibition a series of implements of full size by which a more adequate idea of the nature of the implement is conveyed to the visitor, and by which the farmer is enabled to estimate the value before purchase. It is thus a means of communication between the farmer and the manufacturer.

Hall.

The Agricultural Hall has been specially useful for the accommodation and shelter it affords for the cattle shows, and the superiority of the stock has materially increased since its erection. Three exhibitions of considerable importance have been held in it during the current year.

9TH OCTOBER, 1862.

Lord TALBOT DE MALAHIDE examined.

Agriculture.

Museum.

I am one of the Vice-Presidents of the Royal Dublin Society, and have taken an active interest in its affairs, particularly in those connected with agriculture. I think the Agricultural Museum is extremely useful and particularly beneficial in its effects in a country so circumstanced as Ireland. It is of very great importance to the teaching of persons engaged in agricultural pursuits, to place before them models of the most improved machinery and specimens of the different products which can be cultivated with success; teaching at the same time their modes of cultivation, and the soils and manures particularly adapted for them. The Curator in charge of it is exceedingly attentive, and anxious to give it full efficiency; but we are unfortunate in not having a better *locale* and more funds at our disposal, to make it as complete as possible. The scheme we had in view for the improvement of this department, and to improve the accommodation required for the shows, was to purchase the ground known as the Shelbourne Yard. If this space were provided, it is to be expected that the most eminent English manufacturers would send their machinery to be exhibited upon a more extensive scale than they do at present; and this would be a mutual advantage to them and to the farmers who visit the Museum and the exhibitions for information. The more facilities are given for exhibiting, the greater will be the extent of the objects exhibited.

Chemistry.

I have not been in the habit of often attending the chemical lectures, but I understand that they are very effective, and I know that the analyses of soils and manures which are made in the laboratory must have a very beneficial effect upon agricultural knowledge. Chemistry is a branch of knowledge that must be cultivated, to give proper instruction in agriculture. There is a Professor of Chemistry (Dr. Apjohn), attached to the Royal Agricultural Society of Ireland, who makes analyses for the members of that Society at certain fixed charges. Dr. Cameron, another eminent professional chemist, is also extensively employed by private parties to make analyses of soils and manures in Dublin. I think it is very desirable that lectures on agricultural chemistry should be given from time to time, to call the attention of the public to the subject. Our Professor employs himself in the laboratory in analyzing soils and manures, and I believe it is of the greatest importance that such analyses should be made.

Shows.

As far as the cattle shows are concerned, there are other societies which have a kindred object with ours; but there is a distinct field in which this Society has no competitor, namely, the annual shows held on these premises. The spring show is held at a time suitable for the exhibition of young animals, and is especially remarkable for yearling bulls and heifers of the short-horn breed. They have been always very successful, and it has been generally stated by the judges, who are mostly from the sister country, that no shows contain so good an exhibition of that class of animals as ours. I consider it is of great advantage to have one stated show in the metropolis every year, and there is a very general feeling of the advantages which the country derives from these shows. They are resorted to by the agriculturists and machine-makers of England and Scotland. The first breeders in these countries send their animals to be exhibited here; and altogether this exhibition forms a most important point of connexion between the two countries. I think the Royal Dublin Society should be enabled to give full accommodation to the animals and machinery from this and the sister country. In consequence of the building of the Museum and the National Gallery the lawn is no longer available, while the number of animals and the quantity of machinery exhibited, is continually increasing. Besides, it is now felt necessary to afford shelter to sheep and pigs, animals which formerly were not considered to need such accommodation; and all that requires an increase of space. If the yard I spoke of were thrown into the premises of the Royal Dublin Society, it would meet the difficulty, and enable us to provide ample accommodation for years to come. The agricultural-hall has been of very great advantage to the shows, and has enabled us to exhibit animals with greater success and security.

Hall.

If this addition were made, and this permanent accommodation afforded, could reliance be placed upon the ordinary expenditure being defrayed from the proceeds of the show and from voluntary subscriptions?—There is always a doubt as to the proceeds of a show, for one bad day may destroy all. The weather is an important element in success. If you could insure us fine weather, we would get a considerable sum of money, which would enable us to carry on the shows with success. Permanent additional accommodation would, of course, diminish our expense, and any thing that would improve the shows would increase their attractiveness, and thereby increase the receipts. Supposing this accommodation provided, I think it is reasonable to expect that the current expenses will be provided from the receipts—at least, so far as the spring exhibition is concerned. The winter exhibition has not been so successful as yet, but I would give it a fairer trial; and I see no reason why it should not succeed also under the improved altered circumstances. I may mention here that there is a strong feeling of the importance of giving greater attention to the study of veterinary medicine. It is one of the objects of the Society, and there was at one time a Professor of Veterinary Medicine attached to it. This is a matter of great interest and importance to the country. We have not here, however, any ground that could be devoted to a veterinary school.

Collections in Natural History Museum.

I am aware of the general nature of the collections in the Royal Dublin Society, and the Museum of Irish Industry. I belive that their objects are very similar; much more so now than on the first establishment of the Museum of Irish Industry. It has often occurred to me, that the establishment of that institution was a mistake; that the same amount of funds would have effected the object in view in one establishment in a more satisfactory manner. I am aware that an arrangement has been made, by which a certain number of Professors, should belong to the two institutions; and that the lectures should alternate between them—those at Stephen's-green being of a more technical nature than the lectures delivered here. If it is the feeling of the Government that this system should be amalgamated; I have no doubt that if the Royal Dublin Society is placed in funds, it will be prepared to undertake and carry out the teaching, which is now divided between the two places. There is a mode of arrangement in the collection at Stephen's-green which I think it very desirable to retain; I mean the local collections, descriptive of the geological strata of particular localities; I think these should be kept together. I think the mode of arrangement at Stephen's-green is one which is necessary for the development of the agricultural and mining industry of the country. The Stephen's-green institution might be retained as a school of mining and the arts; but not requiring so large an establishment as at present; and the general scientific instruction might be carried out here. For this purpose, I would propose to retain here the Professors of Agriculture, Botany, and Geology. I think that special instruction in mining and the arts would be better conducted under immediate Government auspices than through the intervention of this Society. I am aware that the mining interest has taken a very considerable start of late years; that a great many valuable mines of copper, lead, and sulphur, are now very successfully worked; and that a knowledge of mining is now more necessary than it was in former years. There is no doubt that, in many situations in Ireland, iron can be advantageously worked in the absence of coal. Many scientific men are of opinion that iron made by charred peat is equal to Swedish iron, and there are great deposits of iron ore in Ireland. Sulphur is also manufactured to a very great extent out of the pyrites; and it is the opinion of eminent geologists that we shall find gold to a considerable extent.

Amalgamation. If an amalgamation be decided upon, I am of opinion that it should take place here. This Society has a large constituency; its members are numerous and influential, and many of them of very high intelligence. Its constitution forms at the same time its strength and its weakness. Its great numbers makes it popular: it has attracted to it of late years great numbers of all classes, and I do not know any Society that possesses to such a degree the confidence of the country; so that it is a ready-made medium of communication with the country. The other institution is entirely supported by the Government; it has no pretension to the name of popular; it has no members supporting it by subscriptions, and thus interested in its success. I think, however, it is an exceedingly interesting institution, and that it is not appreciated as it should be. The constitution of the Royal Dublin Society being a source of weakness arises from this—that there is sometimes a difficulty in carrying the body to assent to certain matters considered advisable by those who carefully examined the question; and that frequently occasions have occurred—as in the election of officers—in which private feeling has been brought into play, for the purpose of influencing the conduct of the Society.

Change in Council. I certainly am of opinion that in order to justify the Government in entrusting the Society with the disbursement of large sums of money, it is necessary that there should be an organ upon the permanency of whose decisions the Government can rely. At present the decisions of the Council are liable to be set aside by the Society at large, and, therefore, there is not the necessary security that the moneys will be expended on the objects intended. I am aware that a Committee was appointed to provide a remedy for this state of things. I quite assent to the proposition that it is necessary for the well being of the Society that the relations between it and the Government should be harmonious; and I distinctly coincide with the proposition, that the general management of the Society, and the exclusive control over its paid officers and servants, should be delegated to the Council. I have no doubt, however, that a large body of the members will be opposed to such a change. I believe this is the usual constitution of societies composed of large numbers, and having the disbursement of large sums of money—that the executive is invested with full authority, and that the influence of the individual members upon the executive is exercised at the election. I cannot mention a case where the government is vested in the whole body, but my impression is that the officers of the Royal Irish Academy are elected by the members. The objects of that Society, however, are more limited, it has very few paid officers, and it administers a much smaller fund. If this change be made greater weight and authority would be given to the position of Member of Council. The circumstance of their decisions not being liable to be reversed will make the position more satisfactory, but I do not think it will create a greater desire for election on the Council. That is at present an object of exceedingly great interest. But I believe it will have the effect of causing greater attention to be paid to the election.

The power to overrule the decisions of the Council has been frequently exercised. It is not an unusual thing for the Society to take a different view from the Council as to matters connected with the management of the Society, and I know that a great number of members will view with distrust an augmentation of the powers of the Council. I see it is proposed to elect to the Council fourteen instead of nine from the general body; so far the action of the members upon the election of the Council would be enlarged, while all the other privileges would remain as they are. I think that by this arrangement the Society would be placed in a satisfactory relation with the Government, and thereby considerable benefit would be likely to result to the Society at large and to the public. So far the position of the members would be improved, and, I think, this would influence the members very much in making them agree to this proposal, and alleviate any feeling they might experience in reference to the change. It only occurs to me that it ought to be considered whether it would be desirable to increase the number of members on the Council, or whether a smaller number might not secure a more effectual administration.

APPENDIX.

Royal Dublin Society, Kildare-street,
4th October, 1862.

Sir,

I am directed by the Council of this Society to forward you the accompanying copies of the Report of the Committee of Natural History, relative to the condition and wants of their Museum, also of a Report of the Committee of Chemistry on the subject of the Chemical Professorship and Laboratory, and also a copy of a letter from the Assistant-Secretary on the subject of the duties and emoluments connected with his department.

I have the honour to be, Sir, your obedient servant,

Wm. Edw. Steele, m.d., Assistant-Secretary.

Captain J. F. D. Donnelly, r.e., &c., &c.
Commision of Inquiry, Royal Dublin
Society.

Statement of the Natural History and Museum Committee respecting Grants, Expenditure, and Position of Museum, &c., submitted and approved of 20th September, 1862.

Royal Dublin Society, Kildare-street,
September 26, 1862.

In the report of the sum required for completing the several departments, dated 24th February, 1860, it was shown that the "New Museum of Natural History" was deficient, according to the estimate for finishing and fitting, by the sum of £4,858 9*s.* 10*d.*

This estimate, which was prepared by the Clerk of the Works of the National Gallery, is merely the cost of completing the Museum, and furnishing it with cases for the safe custody and display of the specimens.

It does not include the necessary expenses for preparing the specimens of mammalia and of birds, and of the other series of the Natural History collections, all of which now lie in packages for want of funds to place them in a state of readiness, when the cases should be completed.

From the above estimate the sum of £800 is to be deducted, which has been granted as a portion of that estimate, and which has already been expended for fixtures, cases, and other contingencies on account of the Museum. This would leave the balance of the estimate £4,058 9*s.* 10*d.*, now required to fulfil any contract that may be entered into for the completion of fixtures, cases, and other necessary finishings.

	£	s.	d.
The estimate was, for sashes, cases, &c., . .	4,507	1	0
Completing walls and flooring, ...	351	8	10
	4,858	9	10

The original cost of the building, and the sums expended, have absorbed a total of £11,733; of that amount £5,800 was voted by Parliament, and the balance, £5,933 was made up and advanced by the Society out of the members' admission and subscription funds, as well as by private subscriptions and sundry allocations made by the Society from other sources.

These details have already been submitted to the Science and Art Department, South Kensington. A further expenditure has been incurred for heating and ventilating the building, aided by the sum of £700, voted to the Board of Public Works for the construction of an apparatus for that purpose.

In submitting detailed statements of what has already been yearly expended for the Museum since 1851, in the preparation of numerous specimens, completing fixtures and cases for their reception, and which also include heavy contingent expenses, it is to be stated that the Society had allocated a sum, to the extent of £633 4*s.* 4*d.*, from a fund that had annually accumulated, and which had been set aside for the purposes of the Museum, when necessity would require its appropriation.

The abstracts detail that—

				£	s.	d.
For the year	1851–1852	the expenditure of the	Museum was	269	19	2
,,	1852–1853	,,	,,	361	4	4
,,	1853–1854	,,	,,	75	5	11½
,,	1854–1855	,,	,,	82	5	9
,,	1855–1856	,,	,,	30	5	9½
,,	1856–1857	,,	,,	58	15	2
,,	1857–1858	,,	,,	37	12	6½
,,	1858–1859	,,	,,	174	7	4
,,	1859–1860	,,	,,	393	9	4
,,	1860–1861	,,	,,	450	9	11
,,	1861–1862	,,	,,	99	17	10
	Making a total expended of		. .	2,033	13	1½

Included in that total are items to the extent of £126 3*s.* 10*d.*, which have not been expended for the present Museum, but were payments made for the painting and repairs of the rooms which formerly contained the collections, and were devoted to the use of the Natural History Department.

The Annual Report of the Society for 1861 has in some measure explained the position of the Museum and its present state, and that, notwithstanding its incompleteness, so great is the interest felt in such studies by the public, that during the past year 17,598 persons have visited the Museum, besides very numerous attendances on the courses of lectures delivered by the Professors connected with that section.

The very limited extent of the means yearly available for the carrying out of such objects may be seen from the fact, that from the annual allocation to the Museum Department of the Government grant of £650, the deductions for the salaries of professors and wages of porters, £454 12*s.*, leave but a balance of £195 8*s.* for all purposes connected with the obtaining and preserving the collections, and for other contingencies.

The liberality of the members and of the friends of the Society has, in the shape of donations, so largely contributed to the fine collections, that for the period of eleven years the total of purchases amount only to £373 10*s*., viz.:—

	£	s.	d.
For the year 1851,	32	15	0
" 1852,	23	10	0
" 1853,	16	10	0
" 1854,	30	10	0
" 1855,	—		
" 1856,	50	0	0
" 1857,	16	10	0
" 1858,	56	0	0
" 1859,	80	0	0
" 1860,	13	15	0
" 1861,	54	0	0
	373	10	0

These statements certainly present a miserable idea of the means at the disposal of the Committee of that section of the Society, and afford full explanation for the apparently neglected condition of the Museum, especially when it is borne in mind that for the due efficiency of the Museum and its several departments, the Committee on the 15th of March, 1859, recommended the following estimate as absolutely requisite for annually maintaining arrangements suitable to the objects it was desired to accomplish, and to the usefulness and position of the Museum as a national institution, viz.:—

	£
Salary of Director,	450
Do. of two Assistants,	300
Do. of two Taxidermists,	130
Do. of two Porters,	120
	1,000
And for the purchase of specimens and other contingencies,	1,000
	£2,000

For a period of nearly three years the specimens for the Museum, most of which are of a perishable nature, requiring a warm and dry atmosphere, and an even temperature, have remained packed in cases, awaiting the completion of the building.

The loss of time arising from the delay in the issuing of the Parliamentary grants has placed the Committee of the Museum Department in a very responsible position in reference to the state of the large collections entrusted to their charge, which are of such an extent as to be fully sufficient, when arranged, to fill all the spaces which could be allocated in the rooms of the new building.

Of this collection there are about 2,500 birds unstuffed for want of means; of mammalia, 300. There are crustacea and molluscs amply sufficient to fill all the cases which an estimate has been given for.

There is also a large collection of insects, fishes, and reptiles—the two latter chiefly spirit preparations. These include the fine series of Arctic specimens presented by Sir Leopold M'Clintock, those obtained from the India House, and of others which embrace the fine series in geology and mineralogy; altogether forming a collection which the present building would no more than be adequate to receive, when arranged so as to secure them for their proper display, for investigation, and reference.

In its complete state the Society could embrace all branches of practical science, and its Museum would be an important means of reference to students who may be preparing for competitive examinations, as well as to the public generally, among whom a desire has increased for general knowledge bearing upon every advancement in the arts, and in the industrial improvement of the country.

In the event, however, at any future period, of further additions to the collections, a greater extent of accommodation would be required; and this would not include a series of specimens in ethnology, a branch of science highly necessary to be formed in the Society.

(Signed) WILLIAM ANDREWS, Member of Committee.
(Adopted) A. A. DUNLOP, Chairman.

REPORT of the COMMITTEE of CHEMISTRY relative to PROFESSORSHIP and LABORATORY.

Royal Dublin Society, Kildare-street,
September 30, 1862.

The Committee of Chemistry beg to request that the Council will take an opportunity in the course of the inquiry now being made by the Treasury into the Royal Dublin Society, of bringing under the notice of the Commissioners the state of the chemical department of the institution, and the inadequate sum granted for the salary of the Professor and the supply of laboratory requisites.

The salary of the Professor is, as the Council is aware, only £150 per annum, while but £28 is the entire sum granted for laboratory requisites in apparatus and chemicals. The Committee taking into consideration the extent and nature of the duties performed by the Professor, are of opinion that his salary should be made at least equal to that of the Professors of the Department of Science and Art, namely, £200, and that not less than £40 should be allowed for the purchase of apparatus and chemicals.

In the event of any changes being effected, having for their object the restoration of the department to its former extent, so that it should embrace the several divisions of chemical science, the Committee consider that provision should be made for a skilled assistant, and an increased sum allowed for laboratory requisites and appliances.

(Signed) WILLIAM MADDEN, Chairman.

BOTANIC GARDEN.

Botanic Garden, Royal Dublin Society's House,
October 6, 1862.

MY LORD JUSTICE AND GENTLEMEN,

Having received your permission to offer any further suggestions which might occur to me in addition on the subject of the Botanic Garden—in addition to my very imperfect evidence given on Friday instant, I beg to submit the following :—

First.—I would draw your attention to the inadequacy of the Curator's salary, a subject which has already been brought under the notice of the Department of Science and Art, in the last estimates submitted by the Council.

Secondly.—I would suggest the removal of the house in which the Curator resides, and the erection of one on a more eligible site, the present house being old, and requiring a large annual outlay for repair, besides being an unsightly object in its present situation.

Thirdly.—I would call your attention to the insufficiency of the allocation for labour, coals, and contingencies for the requirements of so extensive a garden.

I have the honour to be, my Lord and Gentlemen, your obedient servant,

SIMON FOOT, Chairman of the Committee of Botany.

DUTIES and EMOLUMENTS of ASSISTANT-SECRETARY.

Royal Dublin Society, Kildare-street,
October 1, 1862.

MY LORDS AND GENTLEMEN,

I trust you will pardon me for bringing under your special notice, at this time, the duties and emoluments of the office which I have the honour to hold in the Royal Dublin Society.

Although I have long considered that I ought, in justice to myself, have laid before you a statement similar to that which, with your kind permission, I propose now to submit, yet I have hitherto refrained from doing so, well knowing the great and increasing demands made upon the resources of the Society, and the consequent difficulty of arrangements of any kind being adopted, as regards the Secretaries' Department, different from those which have hitherto obtained; however, as a Government Commission is now engaged in inquiring into the working of the whole establishment, I feel that I ought not any longer to refrain from submitting the claims of my department to your kind consideration, in the hope, that should you see fit, you will take an opportunity of bringing the subject under the notice of the Commissioners.

The salaries of the officers of the Secretaries' department are as follows:—

Assistant Secretary, ...	£300
Clerk, ...	75
	375

I may be permitted to remark that the above are the entire emoluments received by these officers respectively; neither having the advantages of residence, &c., servants, fees derived from pupils or apprentices, nor gratuities for extra or special services, so liberally and justly granted to other officers of the establishment.

It is almost needless to remind the Council that the undivided responsibility of carrying on the working of this great establishment devolves upon me; thus, it is my duty to arrange the business for discussion at the several meetings of the Society, the Council, and the various Committees; to enter the minutes of their proceedings in rough books, and register their several orders; to superintend the printing work executed for the entire establishment, including the voluntary task of editing the Society's scientific journal; making the annual abstract of the Meteorological Returns, a task of very great labour; to attend the evening scientific and agricultural meetings, and to note the discussions which take place at the conclusion of the several papers read. Upon me also devolves the responsibility of preparing the various, and oftentimes voluminous reports submitted from time to time by the different departments of the Society. In addition to this, the correspondence connected with this institution is conducted by me; the letters received, preserved, and indexed; besides a copy being taken of every letter of importance sent from this office. In addition to these the Clerk copies the minutes of the Society, the Council, and the several Committees into fair books, and also makes fair transcripts of several business letters, besides issuing circulars, notices, advertisements, &c., &c., and attends meetings of the Council and Committees whenever necessary.

During the organization and continuance of special exhibitions, &c., &c., the business of the office is of necessity increased to so great an extent as to oblige the Committees in charge to secure the services of a special Secretary.

In order to enable the Council to judge of the amount of work performed in this office, I have caused certain returns to be made, which are appended, and which show the duties performed annually by your Assistant-Secretary, aided *solely* by the present very efficient Secretaries' Clerk.

Having thus briefly brought this subject under your notice, I trust that you will, with the feelings of justice which you have on all occasions manifested in dealing with the officers of this institution, take my case and that of the Secretaries' Clerk into consideration, with the view of your obtaining for myself and him such increase of salary as may be commensurate with the extent and importance of the duties performed by each.

I have the honour to be, my Lords and Gentlemen, your obedient servant,

(Signed) WM. EDWD. STEELE, M.D., Assistant-Secretary.

To the Council of the Royal
Dublin Society.

Number of meetings of Society, Council, and Committees, attended by the Assistant-Secretary and Clerk from 1st July, 1861, to 1st July, 1862:—

Meetings	Assistant-Secretary.	Clerk.
Society,	10	3
Council,	30	5
Agriculture,	15	1
Botany,	9	3
Chemistry,	8	1
Fine Arts,	15	3
Library,	20	3
Manufactures,	6	4
Natural History,	7	6
Evening Meetings,	8	2
Natural Philosophy,	1	–
Evening Scientific Meetings,	5	2
Total,	134	33

Average attendance of the Assistant-Secretary during the session, $5\frac{1}{2}$ hours per diem.

The number of *official* letters written and copied from 1st July, 1861, to 1st July, 1862 (exclusive of circulars, notices, official invitations, and general correspondence), amounts to 405.

Number of orders issued for advertisements from 1st July, 1861, to 1st July, 1862, is 308.

Duties of Registrar and Housekeeper.

As Registrar.

To attend the meetings of the Society, Council, Finance, and House Committees at all times, as well as those of the several other Committees whenever required so to do; to issue and cause to be served all orders, summonses, communications, and proceedings of the Society, Council, and Committees; to keep regular accounts of stationery, postages, freights, and incidentals, in connexion with the different departments; to have in safe custody all the Society's title-deeds, leases, and financial documents; to conduct and make accurate copies of all correspondence on financial subjects; to make and preserve correct lists of the members, with dates of their election, and the names of those gentlemen by whom proposed and seconded for ballot; and to inform the Society and Council from time to time of all matters in his department necessary for them to know; to prepare and forward to the authorities in London, the Society's annual estimates when approved of by the Council, as well as those for necessary buildings and repairs to the Commissioners of Public Works in Dublin; to receive and disburse all sums of money arising from the Parliamentary grant, members' admissions and subscriptions, pupils' fees at schools, entrance fees for stock and implements, as well as for the admission of the public to the agricultural, horticultural, and other exhibitions; and to pay the prizes awarded at each, giving full particulars thereof, and classifying every item under its special head of service; and for the faithful accounting of which moneys the Registrar has given the security directed by the Society; to see that no bill shall be laid before the Finance Committee or Council which has not been furnished in duplicate, and previously obtained the certificate of the proper officer, and the signature of the Chairman of the Committee in charge of the department to which it refers, and that the allocation to such department has not been exceeded, but is sufficient to meet the demand; to prepare drafts on the Treasurers for all bills when ordered by the Council for payment; to have those drafts duly signed by an honorary officer, and countersigned by the Assistant-Secretary and Registrar; and to prepare receipts for the signature of the party entitled to be paid the amount, and to whose signature the Registrar has to become the subscribing witness; to furnish to the Department of Science and Art and the Board of Audit in London at the end of each month, duly certified returns of all receipts and payments during that period, accompanied by the bills therein referred to, and supported by vouchers and the certificate of balance from the Accountant General of the Bank of Ireland, the Society's Treasurers; and at the termination of each financial year, to prepare and submit to the same Boards, an abstract, verified before a magistrate, of the annual accounts, and to supply same in a more detailed form for insertion in the Society's printed proceedings, for the information of the members and the general public.

The peculiar nature of the forms prescribed by the Board of Audit and the Society for the performance of those duties require such a variety of entries and details, that it would be difficult to enumerate them; and Mr. White begs to add that the only aid he receives is that of a clerk at the very small salary of £40 per annum.

THE HOUSEKEEPER'S DUTIES

Are to reside constantly in the Society's house; to have the care and custody of the valuable property it and its numerous departments contain; to superintend and control the attendants and servants of the entire establishment; to provide suitable furniture and fitments, fuel, light, and all other articles necessary for keeping in proper order and preservation the house, &c.; involving duties and responsibilities of an arduous and important nature from the great extent of the premises, and the value of the property to be looked after, especially as many of the Society's operations are carried on up to late hours of the night, by the frequent attendance of the public at scientific lectures and meetings, of readers in the library, and students in the schools of art; upon all which occasions, owing to the numerous fires and lights made use of, the most unremitting vigilance and attention is required on the part of the Housekeeper.

HENRY C. WHITE,
Registrar and Housekeeper, Royal Dublin Society.

October 3, 1862.

LETTER to the Right Hon. C. B. ADDERLEY, M.P.

Royal Dublin Society's House,
3rd October, 1862.

SIR,

I have the honour to inform you that a Treasury Commission has been appointed to inquire into the Royal Dublin Society, Museum of Irish Industry, Royal Hibernian Academy, Royal Irish Academy, and Committee of Lectures, the Treasury Minute for which I enclose. This Commission is now sitting here for the purpose of taking evidence. Considering that, as you have interested yourself in this subject and brought it forward in the House of Commons, you may wish to bring your views before them, the Commissioners desire me to inform you that they will be happy to receive any communication from you on the subject.

I have the honour to be, Sir, your obedient servant,

J. F. D. DONNELLY, Capt. R.E.

The Right Hon. C. B. Adderley, M.P.
&c. &c.

Letter from the Right Hon. C. B. Adderley, M.P.

Hams, Minworth, Birmingham,
October 15th.

Sir,

I beg to thank you for the papers you have sent me relating to the Treasury Commission now in Dublin, and to acknowledge the courtesy of the Commissioners in offering me the opportunity of making any suggestions.

I have no means of suggesting by what new arrangements a simplification of the Institutions under consideration might be best effected, but I certainly left the Department fully convinced that it would be for the interests of the public that the Royal Dublin Society and Museum of Irish Industry, having now every provision in duplicate for the same objects, should be brought together and made one, at least as far as the Treasury is concerned with them.

The double staff, double lectureships, double collections, double building and fitting grants, double services of all sorts kept up by aid of national taxation for identical purposes on the same spot cause an obvious waste of resources.

The interests of science suffer as much as the public purse by such a system. Better control and restricted access to the Treasury through only one office are also absolutely required. I am quite ready to bear this testimony as the results of my own official acquaintance with the subject, in aid of present inquiries of the Royal Commission.

I am, obediently yours,

C. B. Adderley.

Captain Donnelly, R.E.

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